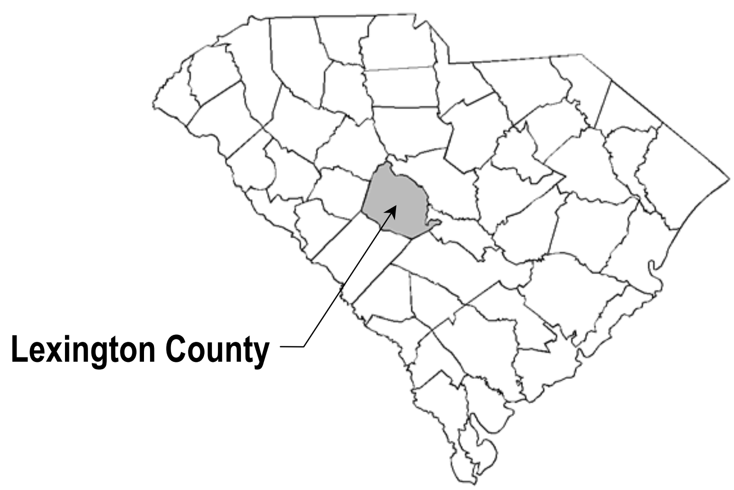
FLOOD INSURANCE STUDY

LEXINGTON COUNTY, SOUTH CAROLINA
AND INCORPORATED AREAS

COMMUNITY NAME	COMMUNITY NUMBER
BATESBURG LEESVILLE, TOWN OF	450130
CAYCE, CITY OF	450131
COLUMBIA, CITY OF	450172
GILBERT, TOWN OF	450132
IRMO, TOWN OF	450133
LEXINGTON, TOWN OF	450134
LEXINGTON COUNTY (UNINCORPORATED AREAS)	450129
PELION, TOWN OF	450135
PINE RIDGE, TOWN OF	450136
SOUTH CONGAREE, TOWN OF	450137
SPRINGDALE, TOWN OF	450138
SWANSEA, TOWN OF	450139
WEST COLUMBIA, CITY OF	450140



PROOF
AUGUST 20, 2001

REVISED:

Federal Emergency Management Agency

NOTICE TO
FLOOD INSURANCE STUDY USERS

Communities participating in the National Flood Insurance Program have established repositories of flood hazard data for floodplain management and flood insurance purposes. This Flood Insurance Study (FIS) may not contain all data available within the repository. It is advisable to contact the community repository for any additional data.

Part or all of this FIS may be revised and republished at any time. In addition, part of this FIS may be revised by the Letter of Map Revision process, which does not involve republication or redistribution of the FIS. It is, therefore, the responsibility of the user to consult with community officials and to check the community repository to obtain the most current FIS components.

Initial Countywide FIS Effective Date: July 17, 1995

Revised Countywide FIS Dates: February 9, 2000

This preliminary FIS report does not include unrevised Floodway Data Tables or unrevised Flood Profiles. These Floodway Data Tables and Flood Profiles will appear in the final FIS report.

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FLOOD INSURANCE STUDY
LEXINGTON COUNTY, SOUTH CAROLINA, AND INCORPORATED AREAS

1.0 INTRODUCTION

1.1 Purpose of Study

This countywide Flood Insurance Study (FIS) revises and updates the previous FIS/Flood Insurance Rate Map (FIRM) for the geographic area of Lexington County, South Carolina, including: the Cities of Cayce, Columbia, and West Columbia; the Towns of Batesburg Leesville (previously the Towns of Batesburg and Leesville), Gilbert, Irmo, Lexington, Pelion, Pine Ridge, South Congaree, Springdale, and Swansea; and the unincorporated areas of Lexington County (hereinafter referred to collectively as Lexington County). The Towns of Chapin, Gaston, and Summit are non-floodprone. The City of Columbia and the Towns of Batesburg Leesville and Irmo are located in more than one county. The Town of Batesburg Leesville, which is located in Lexington and Saluda Counties, is shown in its entirety in this FIS. Flood hazard information for the portions of the City of Columbia and the Town of Irmo located in Richland County is included in the FIS for Richland County, South Carolina, and Incorporated Areas (Reference 1).

This FIS aids in the administration of the National Flood Insurance Act of 1968 and the Flood Disaster Protection Act of 1973. This study has developed flood risk data for various areas of the community that will be used to establish actuarial flood insurance rates and assist the community in their efforts to promote sound floodplain management. Minimum floodplain management requirements for participation in the National Flood Insurance Program (NFIP) are set forth in the Code of Federal Regulations at 44 CFR, 60.3.

In some States or communities, floodplain management criteria or regulations may exist that are more restrictive or comprehensive than the minimum Federal requirements. In such cases, the more restrictive criteria take precedence and the State (or other jurisdictional agency) will be able to explain them.

1.2 Authority and Acknowledgments

The sources of authority for this FIS are the National Flood Insurance Act of 1968 and the Flood Disaster Protection Act of 1973.

The original July 17, 1995, countywide FIS was prepared to include incorporated communities within Lexington County in a countywide FIS format. Information on the authority and acknowledgments for each jurisdiction included in this countywide FIS, as compiled from their previously printed FIS reports, is shown below.

City of Cayce:	the hydrologic and hydraulic analyses for the FIS report dated November 1, 1979, were prepared by the U.S. Army Corps of Engineers (USACE), Charleston

District, for the Federal Insurance Administration (FIA), under Inter-Agency Agreement No. IAA-H-10-77, Project Order No. 5. Field surveys were performed by Heaner Engineering Company, Inc., under supervision of the USACE. That work was completed in June 1978. The hydrologic and hydraulic analyses for the FIS report dated January 5, 1989, were performed by Mr. Steven M. Bradley, P.E.

City of Columbia: the hydrologic and hydraulic analyses for the FIS report dated September 2, 1981, were prepared by the USACE, Charleston District, for the FIA, under Inter-Agency Agreement No. IAA-H-10-77, Project Order No. 5. Field surveys were performed by Heaner Engineering Company, Inc., and Triangle Engineering-Architecture Planning, Inc., under supervision of the USACE. The hydrologic and hydraulic analyses for the FIS report dated February 4, 1987, were performed by the USACE, Charleston District, for FEMA.

Town of Irmo: the hydrologic and hydraulic analyses for the FIS report dated November 1, 1979, were prepared by the USACE, Charleston District, for the FIA, under Inter-Agency Agreement No. IAA-H-10-77, Project Order No. 5. Field surveys were performed by Heaner Engineering Company, Inc., under supervision of the USACE. That work was completed in August 1978. The hydrologic and hydraulic analyses for the FIS report dated April 16, 1991, were performed by Mr. Steven M. Bradley, P.E.

Town of Lexington: the hydrologic and hydraulic analyses for the FIS report dated November 1979, were prepared by the USACE, Charleston District, for the FIA, under Inter-Agency Agreement No. IAA-H-10-77, Project Order No. 5. Field surveys were performed by Heaner Engineering Company, Inc., under supervision of the USACE. That work was completed in August 1978.

Lexington County (Unincorporated Areas): the hydrologic and hydraulic analyses for the FIS report dated December 15, 1980, were prepared by the USACE, Charleston District, for the FIA, under Inter-Agency Agreement No. IAA-H-10-77, Project Order No. 5. That work was completed in November

1978. The hydrologic and hydraulic analyses for the FIS report dated December 2, 1988, were performed by Mr. Steven M. Bradley, P.E.

Town of Pine Ridge: the hydrologic and hydraulic analyses for the FIS report dated September 18, 1979, were prepared by the USACE, for the FIA, under Inter-Agency Agreement No. IAA-H-7-76, Project Order No. 25 and No. IAA-H-10-77, Project Order No. 4. Field surveys were performed by Heaner Engineering Company, Inc., under supervision of the USACE. That work was completed in March 1978. The hydrologic and hydraulic analyses for the FIS report dated December 2, 1988, were performed by Mr. Steven M. Bradley, P.E.

Town of South Congaree: the hydrologic and hydraulic analyses for the FIS report dated March 28, 1979, were prepared by the USACE, Charleston District, for the FIA, under Inter-Agency Agreement No. IAA-H-10-77, Project Order No. 5. That work was completed in March 1978. The hydrologic and hydraulic analyses for the FIS report dated December 2, 1988, were performed by Mr. Steven M. Bradley, P.E.

Town of Springdale: the hydrologic and hydraulic analyses for the FIS report dated November 1979, were prepared by the USACE, Charleston District, for the FIA, under Inter-Agency Agreement No. IAA-H-10-77, Project Order No. 5. That work was completed on May 24, 1978.

City of West Columbia: the hydrologic and hydraulic analyses for the FIS report dated February 15, 1979, were prepared by the USACE, Charleston District, for the FIA, under Inter-Agency Agreement No. IAA-H-10-77, Project Order No. 4, as amended, and No. IAA-H-10-76, Project Order No. 25. That work was completed in December 1977.

The authority and acknowledgments for the Towns of Batesburg Leesville, Gilbert, Pelion, and Swansea are not available because no FIS reports were ever published for those communities.

For the July 17, 1995, countywide FIS, new or revised hydrologic and hydraulic analyses were prepared for the streams listed in the following tabulation.

Stream(s)	Prepared by	Inter-Agency or Contract No.	Date Completed
Savana Branch, Tributary K-2, Tributary SM-2, and Yost Creek	USACE, Charleston District	*	February 1992
Fourteen Mile Creek and Twelve Mile Creek	USACE, Charleston District	*	October 1992
Senn Branch and Tributary SM-3	USACE, Charleston District	*	*
Stoop Creek[1]	USACE, Charleston District	Inter-Agency Agreement No. EMW-87-E-2509, Project Order No. 8	February 1989
Stoop Creek	Bradley, Williams, and Associates	*	March 1994

*Data not available
[1]Prepared for the FIS for Richland County (Reference 1)

For the February 9, 2000, countywide FIS, the hydrologic and hydraulic analyses were prepared by Hayes, Seay, Mattern & Mattern, Inc., for FEMA, under Contract No. EMW-95-C-4723. This work was completed in August 1996. Additionally, hydrologic and hydraulic analyses for Tributary to Fourteen Mile Creek were prepared by Carlisle Associates, Inc., and hydraulic analysis of Kinley Creek was prepared by Bradley, Williams and Associates (Reference 2).

For this revision, the hydrologic and hydraulic analyses were prepared by Hayes, Seay, Mattern & Mattern, Inc., for FEMA, under Contract No. EMW-95-C-4723, and revised by Dewberry & Davis LLC in response to appeals received.

Planimetric base map files were provided in digital format by the Lexington County Department of Planning and Development, 212 South Lake Drive, Lexington, South Carolina 29072. These files were compiled at scales of 1"=200' and 1"=400' from orthophotography dated March 1989. The coordinate system used to produce the digital FIRM is Universal Transverse Mercator referenced to the North American Datum of 1927 and the Clark 1866 spheroid.

1.3 Coordination

The purpose of an initial Consultation Coordination Officer's (CCO) meeting is to discuss the scope of the FIS. A final CCO meeting is held to review the results of the study.

The dates of the initial and final CCO meetings held for Lexington County and the incorporated communities within its boundaries are shown in the following tabulation:

Community Name	Initial CCO Date	Final CCO Date
City of Cayce	January 1976	April 24, 1979
City of Columbia	January 1976	August 28, 1980
Town of Irmo	January 1976	April 25, 1979
Town of Lexington	January 1976	April 25, 1979
Lexington County (Unincorporated Areas)	January 1976	November 14, 1979
Town of Pine Ridge	January 1976	February 1, 1979
Town of South Congaree	January 1976	September 5, 1978
Town of Springdale	January 1976	July 1978
City of West Columbia	January 25, 1977	February 22, 1978

The initial CCO meetings were held with representatives from the FIA, the communities, the USACE, and the Central Midlands Regional Planning Council. The final CCO meetings were held with representatives from the FIA, the communities, and the USACE. Results of the hydraulic analyses were coordinated with the U.S. Geological Survey (USGS).

For the July 17, 1995, FIS, all the communities were notified by letter on March 12, 1993, that a countywide FIS was being initiated.

For the February 9, 2000, revision, an initial CCO meeting was held on September 15, 1994, and was attended by representatives of Lexington County and Hayes, Seay, Mattern and Mattern, Inc.

In the course of the February 9, 2000, revision, the South Carolina Department of Transportation, the USGS, FEMA, and Dewberry & Davis LLC were contacted to supply relevant information concerning the studied streams. The South Carolina Department of Transportation provided hydraulic analyses as well as many historical high watermarks throughout the county. The USGS provided stream gage data and historical high watermarks. Dewberry & Davis LLC and Lockwood Greene Engineers, Inc., also provided hydrologic and hydraulic analyses for the Congaree River.

The survey for vertical control was coordinated with the South Carolina Geodetic Survey. Benchmarks were established on all structures surveyed in this revision.

2.0 AREA STUDIED

2.1 Scope of Study

This FIS covers the geographic area of Lexington County. The area of study is shown on the Vicinity Map (Figure 1).

All or portions of the following flooding sources were studied by detailed methods: Big Branch, Congaree Creek, the Congaree River, First Creek, Fourteen Mile Creek, Kinley Creek, Koon Branch, Lick Fork Branch, Rawls Creek, Red Bank Creek, the Saluda River, Savana Branch, Second Creek, Bear Creek, Hunt Branch, Senn Branch, Six Mile Creek, Stoop Creek, Tributary CR-1, Tributary CR-1-1, Tributary K-2, Tributary R-2, Tributary SM-2, Tributary SM-3, Tributary SM-5, Tributary to Fourteen Mile Creek, Twelve Mile Creek, Yost Creek, and Lake Murray. Limits of detailed study are indicated on the Flood Profiles (Exhibit 1) and on the FIRM (Exhibit 2).

As part of the July 17, 1995, countywide FIS, updated analyses were included for the flooding sources shown in Table 1, "Scope of Revision for July 17, 1995, FIS."

TABLE 1 - SCOPE OF REVISION FOR JULY 17, 1995, FIS

Flooding Source	Limits of Revised or New Detailed Study
Fourteen Mile Creek	From its confluence with Twelve Mile Creek to a point approximately 0.6 mile upstream of Old Chapin Road
Savana Branch	From its confluence with Congaree Creek to Edmund Highway
Senn Branch	From a point approximately 560 feet downstream of Epharator Drive to a point approximately 20 feet upstream of Hebron Drive
Stoop Creek	From its confluence with the Saluda River to a point approximately 0.5 mile upstream of Interstate Route 26
Tributary K-2	From a point approximately 20 feet downstream of Piney Grove Road to a point approximately 0.5 mile upstream
Tributary SM-2	From its confluence with Six Mile Creek to a point approximately 130 feet upstream of Old Frink Street

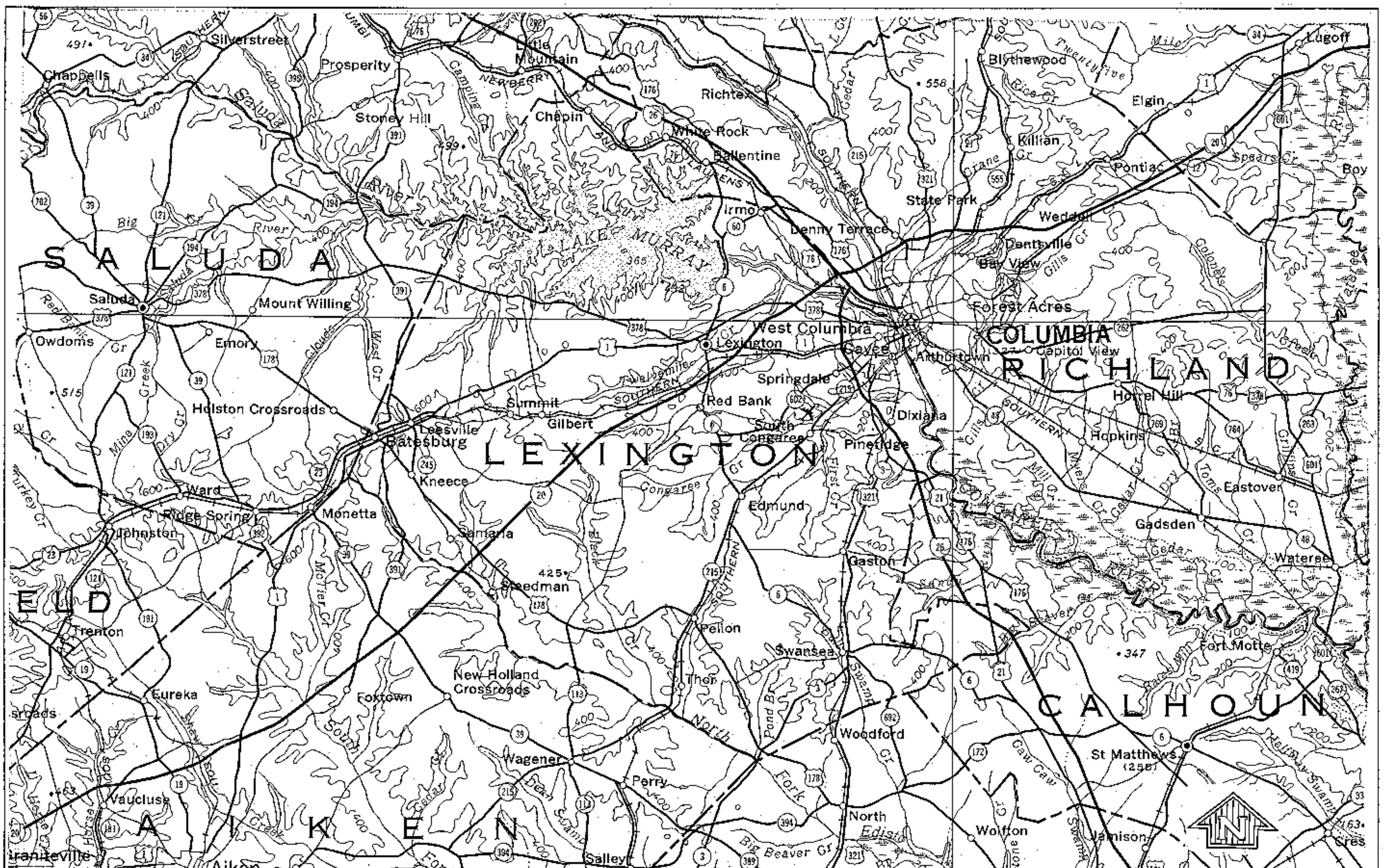


FIGURE 1

FEDERAL EMERGENCY MANAGEMENT AGENCY

LEXINGTON COUNTY, SC
AND INCORPORATED AREAS

APPROXIMATE SCALE

8 0 8 16 24 MILES

VICINITY MAP

TABLE 1 - SCOPE OF REVISION FOR JULY 17, 1995, FIS - continued

Flooding Source	Limits of Revised or New Detailed Study
Tributary SM-3	From a point 290 feet downstream of Route 302 to a point approximately 0.4 mile upstream of the Lexington Drive dam
Twelve Mile Creek	From its confluence with the Saluda River to a point approximately 1.0 mile upstream of Mineral Springs Road
Yost Creek	From its confluence with Rawls Creek to a point approximately 60 feet upstream of Lincreek Road

In addition, a Zone AO (Depth 2.0 Feet) designation was added near the confluence of Savana Branch and Congaree Creek.

The July 17, 1995, FIS incorporates the effects of annexations or deannexations by Lexington County; the Cities of Cayce, Columbia, and West Columbia; and the Towns of Batesburg, Leesville, Chapin, Gaston, Irmo, Lexington, Pine Ridge, Pelion, South Congaree, and Swansea.

The July 17, 1995, FIS also incorporates the determinations of Letters of Map Revision issued by FEMA for the projects listed by community in Table 2, "Letters of Map Revision."

TABLE 2 - LETTERS OF MAP REVISION

Community	Flooding Source(s) and Project Identifier	Date Issued
City of Cayce	Tributary CR-1 revised hydrologic and hydraulic analyses	November 9, 1990
Lexington County (Unincorporated Areas)	Kinley Creek Whitehall Subdivision	July 13, 1989
	Red Bank Creek Husman Property	April 11, 1990
	Kinley Creek St. Andrews Road channel modification and fill project	December 20, 1991
	Rawls Creek Cold Stream Country Club Dam	December 7, 1994
Town of Springdale	Six Mile Creek FEMA revised floodway analysis	October 19, 1987

For the February 9, 2000, countywide FIS, the streams shown in Table 3, "Scope of Revision for this FIS" were restudied or newly studied by detailed methods.

TABLE 3 - SCOPE OF REVISION FOR THE FEBRUARY 9, 2000, FIS

Flooding Source	Limits of Revised or New Detailed Study
Congaree Creek	From a point approximately 800 feet upstream of the confluence with the Congaree River to the upstream side of Platt Springs Road
First Creek	From a point approximately 800 feet downstream of Dogwood Road to a point approximately 250 feet upstream of Goodwin Dam
Fourteen Mile Creek	From a point approximately 2,050 feet upstream of Old Chapin Road to the upstream side of Wise Ferry Road
Kinley Creek	From Beaver Dam Road to Piney Grove Road
Lick Fork Branch	From the confluence with Durham Pond to the downstream side of Kitti Wake Drive Pond
Red Bank Creek	From the confluence with Congaree Creek to the downstream side of Calk's Ferry Road
Saluda River	From the confluence with the Congaree River to the upstream side of Interstate Route 20
Savana Branch	From its confluence with Congaree Creek to a point approximately 75 feet upstream of St. Davids Church Road
Second Creek	From its confluence with First Creek to its confluence with Bear Creek
Bear Creek	From its confluence with Second Creek to its confluence with Hunt Branch
Hunt Branch	From its confluence with Bear Creek to a point approximately 350 feet upstream Darden Pond Dam
Six Mile Creek	From its confluence with Congaree Creek to its confluence with Tributary SM-2

TABLE 3 - SCOPE OF REVISION FOR THE FEBRUARY 9, 2000, FIS - continued

Flooding Source	Limits of Revised or New Detailed Study
Tributary to Fourteen Mile Creek	From its confluence with Fourteen Mile Creek to a point approximately 1,890 feet upstream
Twelve Mile Creek	From Gibson Pond to a point approximately 2,500 feet upstream of Taylor Mill Pond Dam
Lake Murray	For its entire shoreline within the county

In addition, all detailed studied streams not affected by the February 9, 2000, FIS, were redelineated using updated topographic information (Reference 3).

The February 9, 2000, FIS also incorporates the determinations of two Letters of Map Amendment (LOMAs) and a Letter of Map Revision (LOMR) issued by FEMA:

Community	Flooding Source(s) and Project Identifier	Date Issued	Type
Town of Lexington	Fourteen Mile Creek Lots 12, 13, 17, 18, 22, and 23	September 16, 1996	LOMA
Town of Lexington	At confluence of Long Branch and Long Branch Tributary A	July 8, 1998	LOMR
Lexington County (Unincorporated Areas)	Rawls Creek Tributary Amberly West subdivision	January 7, 1997	LOMA

For this revision, the Congaree River was studied by detailed methods for its entire reach within the community.

The areas studied by detailed methods were selected with priority given to all known flood hazard areas and areas of projected development and proposed construction.

Numerous flooding sources in the county were studied by approximate methods. Approximate analyses were used to study those areas having a low development potential or minimal flood hazards. The scope and methods of study were proposed to, and agreed upon by, FEMA and Lexington County.

2.2 Community Description

Lexington County, located in central South Carolina, is bordered by Newberry County to the northwest, Saluda County to the west, Aiken County to the southwest, Orangeburg County to the south, Calhoun County to the southeast, and Richland County to the northeast.

Most of the urbanized area of Lexington County is located on the east side of the county in the vicinity of the Cities of Columbia, West Columbia, and Cayce and the Towns of Springdale, South Congaree, Pine Ridge, and Irmo. Except for a few small urban areas in the vicinity of the Town of Batesburg Leesville near the western county boundaries, the remainder of the land is wooded or used for agricultural purposes. Within the floodplains studied, development is limited to a few scattered residences and commercial buildings. There are no large concentrations of floodplain development in the unincorporated areas of the county.

The climate of central South Carolina is temperate, with average monthly temperatures ranging from 84 degrees Fahrenheit (^{o}F) in the summer to 39^{o}F in the winter. Average annual precipitation for the region is 46.4 inches. The precipitation is evenly distributed throughout the year, but approximately 40 percent of the annual rainfall occurs during the period of June through September (Reference 4).

Generally, soils in Lexington County are excessively drained silty sands and loams, with local deposits of rock and gravel. In the creek bottoms, soils generally consist of alluvial sands and silts blanketed with finer (clay) soils, with local deposits of sands and gravel.

2.3 Principal Flood Problems

Past flooding on the streams in Lexington County indicates that flooding may occur during any season of the year. However, floods on the larger streams, including the Saluda, Congaree, and North Fork Edisto Rivers, are more likely to occur from June through October as a result of tropical hurricanes.

The three worst floods on the Congaree and Saluda Rivers occurred in August 1908, August 1928, and October 1929. Peak discharges for these events at the Congaree River USGS gage below Gervais Street at Columbia were 364,000 cubic feet per second (cfs), 311,000 cfs, and 303,000 cfs, respectively (Reference 5).

The maximum stage recorded on the Congaree River, at the Gervais Street USGS gage at Columbia, was 152.8 feet, which occurred during the flood in August 1908.

The 1928 flood was caused by two tropical storms which passed over the Santee Basin. The first storm, which occurred August 10 and 11, was centered across the middle of the Carolinas, and did not raise the rivers to excessive heights. The second storm, which took place on August 15 and 16, resulted in major flooding throughout the basin. The Congaree River at Columbia reached 37.5 feet on August 18, which was 2.3 feet below the high-water mark on August 27, 1908.

The two tropical storms of September 22 and 27, and October 1 and 2, 1929, produced floods of exceptional severity over the Saluda and Broad River watersheds, establishing new high-water marks on some of the tributaries. At Blair Station on the Broad River, a gage height of 38.5 feet was reached, 7.5 feet above the recorded stage of August 1908. The Congaree River at Columbia reached a stage of 37.1 feet, 2.7 feet below the high-water mark of August 1908. The Saluda Dam was near completion and Lake Murray was in the process of being filled when the 1929 flood occurred. The storage provided by the partially filled lake resulted in considerable reduction of the flood peak in the Saluda River below the Saluda Dam. If the lake storage had not been available, the 1929 flood stage at Columbia would probably have exceeded the previous high-water mark of August 1908. A number of bridges on tributaries of the Broad and Saluda Rivers were washed out, some state and county highways were closed to traffic for several days, and a number of mills and small hydro-electric plants were put out of commission for short periods.

The October 1929 flood was the maximum known flood on the Saluda River. At the USGS gaging station located approximately 2 miles above the mouth, the river reached an elevation of 164.7 feet, and the estimated peak discharge was 67,000 cfs. The Saluda Dam Project was near completion and Lake Murray was in the process of being filled when the 1929 flood occurred. The storage provided by the partially filled lake resulted in considerable reduction of the flood peak on the Saluda River below the dam. If the same flood occurred under existing conditions, the peak stage and discharge would be much higher. For this reason, a meaningful comparison between the 1929 flood and computer flood frequency-discharge relationships for the Saluda River cannot be made. The computed 100-year frequency stage and discharge at the gaging station (River Mile 2.1) are 168.9 feet and 105,000 cfs, respectively.

Stream gage data have been collected at the USGS Congaree Creek gage below U.S. Highway 321 at the City of Cayce since 1959 (Reference 6). During the period of record, the maximum flood (October 1959) reached a peak discharge of 1,840 cfs and crested at 134.9 feet. This flood had an approximate return frequency of 18 years. The estimated 100-year flood at the same location has a peak discharge of 14,800 cfs and a crest stage of 143.5 feet. The October 1959 flood caused only a small amount of damage in Lexington County because there was little development in the floodplain at that time.

The most recent flood of record occurred in October 1976. The peak discharge at the Congaree River USGS gage below Gervais Street at Columbia was 155,000 cfs and approximated a 10-year flood.

There is no information available on past flood history for Six Mile Creek and its tributaries in Springdale. Since the drainage areas are small and there is a considerable amount of urban development in the basin, it is reasonable to assume that floods can occur at any time during the year from local thunderstorms. Following intense rainfall over the basin, floods will rise and fall swiftly.

There is very little historic flood data available on Twelve Mile Creek. Interviews with local residents indicated that the dams forming Gibson Pond and Lexington Mill Pond failed during a flood in April 1936. There was no development in the reach between the ponds, but a store and several cabins located below Lexington Mill Pond were washed away. Both dams were reconstructed and no failures have occurred for the past 40 years. Reconstruction of Lexington Mill Pond Dam included a manually operated emergency spillway, a feature which the original structure did not have. These gates can be opened to lower the pond when flood warnings are received. Stage-discharge data on other streams in the study area were not available.

2.4 Flood Protection Measures

Floods in Lexington County may be affected by operation of two large reservoirs on the Saluda River. Lake Greenwood, which was formed by Buzzards Roost Dam and completed in 1940, is operated by Duke Power Company. Lake Greenwood, located at River Mile 60, has a surface area of approximately 11,400 acres at maximum power pool. Saluda Dam, completed in 1930 by South Carolina Electric and Gas Company, forms Lake Murray, located approximately 12 miles above the mouth of the Saluda River. It has a surface area of approximately 51,000 acres at maximum power pool.

Both reservoirs are operated for hydroelectric power generation and are subject to regulations prescribed by the Federal Energy Regulatory Commission (FERC). When inflow during major floods requires temporary storage above maximum operating pool levels, releases are made through spillway gates to augment discharges through power turbines in order to lower the reservoirs to required maximum pool levels as soon as possible. Both of these dams are operated to produce hydroelectric power, and any flood control that occurs as a result of the operation is coincidental.

A levee exists along the east bank of the Congaree River. The criteria used to evaluate protection against the 100-year flood are 1) adequate design, including freeboard, 2) structural stability, and 3) proper operation and maintenance.

FEMA specifies that all levees must meet the criteria of NFIP regulations Section 65.10 to be considered a safe flood protection structure. It has been determined that the levee along the Congaree River does not meet these requirements. Therefore, the levee cannot be certified as providing protection against the 100-year flood.

Non-structural measures of flood protection have been implemented by Lexington County to aid in the prevention of future flood damage. These are in the form of subdivision regulations which control construction within flood hazard areas (Reference 7).

3.0 ENGINEERING METHODS

For the flooding sources studied in detail in the county, standard hydrologic and hydraulic study methods were used to determine the flood hazard data required for this study. Flood events of a magnitude which are expected to be equaled or exceeded once on the average during any 10, 50-, 100-, or 500-year period (recurrence interval) have been selected as having special significance for floodplain management and for flood insurance rates. These events, commonly termed the 10-, 50-, 100-, and 500-year floods, have a 10-, 2-, 1-, and 0.2-percent chance, respectively, of being equaled or exceeded during any year. Although the recurrence interval represents the long term average period between floods of a specific magnitude, rare floods could occur at short intervals or even within the same year. The risk of experiencing a rare flood increases when periods greater than 1 year are considered. For example, the risk of having a flood which equals or exceeds the 100-year flood (1-percent chance of annual exceedence) in any 50-year period is approximately 40 percent (4 in 10), and, for any 90-year period, the risk increases to approximately 60 percent (6 in 10). The analyses reported herein reflect flooding potentials based on conditions existing in the community at the time of completion of this study. Maps and flood elevations will be amended periodically to reflect future changes.

3.1 Hydrologic Analyses

Hydrologic analyses were carried out to establish the peak discharge-frequency and peak elevation-frequency relationships for each flooding source studied in detail affecting the county.

Precountywide Analyses

Each community within Lexington County, except for the Towns of Batesburg Leesville, Gilbert, Pelion, and Swansea has a previously printed FIS report. The hydrologic analyses described in those reports has been compiled and is summarized below.

Several methods of computation were used to compute peak discharges due to variations in drainage area size, type of development within the watersheds, and availability of stream gage data for the streams selected for detailed study.

Discharge-frequency relationships for the Congaree Saluda River were derived using the log-Pearson Type III method based on stream gage records collected at USGS stream gaging stations (References 8 and 9).

Eighty-six years of records have been collected on the Congaree River at the City of Columbia since 1891 and fifty-two years of records have been collected on both the Saluda River near Columbia, and the Broad River near the Town of Richtex. The construction of Saluda Dam in 1929 altered the flood situation at the gaging stations on the Saluda River.

Maximum operating pool level of Lake Murray, as regulated by the FERC, is 360 feet. When inflow during major floods requires temporary storage above maximum operating pool level, releases are made through spillway gates to augment discharges through power turbines in order to lower the reservoir to required maximum pool level as soon as possible. During this operation, spillway gates are opened gradually until the lake level begins to recede. As long as the reservoir level continues to rise, gate openings will be increased until all six spillway gates are wide open. This type of operation attempts to keep outflow approximately equal to inflow without allowing the reservoir to rise to a dangerous level. If, prior to a flood occurrence, the reservoir happens to be below normal operating level, some of the floodwater will be stored, resulting in a reduction of peak discharges downstream.

The chance of incidental flood control storage is greater for minor floods than for major floods; therefore, it was assumed that streamflow records collected on the Saluda River near Columbia could be used, without adjustments, to determine discharge-frequency relationships for floods up to 10-year frequency at both stations. In order to establish the upper end of the discharge-frequency curves, it was necessary to adjust recorded flood discharges which were affected by coincidental flood control storage. This was accomplished by applying methods based on the hydrologic equations utilizing peak discharge and mean discharge information supplied by the USGS and South Carolina Electric and Gas Company (References 10 and 11). The adjustments provided a homogeneous set of data, which was used as a basis for probability studies to establish the portion of the discharge-frequency curves from the 50- to 500-year frequencies at both gage stations. Smooth transitions were drawn between the upper and lower frequency curves for both stations.

Six Mile Creek discharge-frequency relationships were developed using methods prescribed in a USGS open-file report, and the results were checked against the results of a rainfall runoff model developed during a USACE floodplain information study report (References 12 and 13).

Discharge-frequency determinations for Big Branch, Kinley Creek, Koon Branch, Rawls Creek, Senn Branch, Six Mile Creek, Stoop Creek, Tributary CR-1, Tributary CR-1-1, Tributary K-2, Tributary R-2, Tributary SM-3, and Tributary SM-5, were computed using USGS urban runoff formulas contained in an open-file report (Reference 12).

For Rawls Creek in the Town of Irmo, the discharge at the upstream corporate limit was estimated from regional regression equations (Reference 14). Adjustments to the discharges were made for future urbanization (Reference 12, 15, and 16).

Discharges were not determined for Kinley Branch, F-1, Tributary R-1, Tributary SM-4, Tributary SM-6, Tributary SM-7, Tributary TM-1, Tributary TM-2, Tributary TM-3, and Tributary TM-3-1 which were studied by approximate methods. Flood boundaries for these streams were estimated based on information developed for detailed study reaches in the same area.

Additional data used to confirm frequency curves developed by the methods cited earlier included a Standard Project Flood developed for the Congaree River at Columbia and a Standard Project Flood developed by USACE during preparation of the Detailed Design Memorandum for the Cooper River Rediversion Project (References 17 and 18).

Revised Analyses for the July 17, 1995, Countywide FIS

Information on the methods used to determine peak-discharge frequency relationships for the streams revised or restudied as part of the July 17, 1995, FIS is shown below.

Peak discharges for Tributary K-2, Tributary SM-2, and Yost Creek were computed using the USACE HEC-1 rainfall-runoff model (Reference 19). Rainfall values for storms having recurrence intervals of 10-, 50-, and 100-years were obtained using the U.S. Weather Bureau Technical Paper No. 40 (TP-40) publication (Reference 20). The rainfall for the 500-year storm was determined using graphical methods. Index rainfall values were adjusted for drainage area for input to the model. The Soil Conservation Service (SCS) unit hydrograph procedures were used to establish rainfall-runoff relationships. Topographic maps and field inspections were used to determine the hydrologic characteristics of the stream basins included in this study (Reference 21). SCS unit hydrograph parameters were determined from the basin characteristics using the guidelines outlined in SCS Technical Release 55 (Reference 16). Using the unit hydrograph parameters and rainfall data obtained as described above, stream basins were modeled with the HEC-1 flood hydrograph package to determine peak discharges along the streams for floods of the selected recurrence intervals.

Hydrologic analyses were performed to determine peak discharge-frequency relationships for the streams included in this special study. Peak discharges for Senn Branch were obtained from a detailed hydrologic study of the watershed, which was conducted by the Lexington County Department of Planning and Development (DPD), in cooperation with the University of South Carolina. This study utilized the DRAIN:EDGE numerical model to simulate the rainfall-runoff process. The Lexington County DPD utilized the Geographical Information System to determine basin parameters for input to the DRAIN:EDGE model. Peak discharges for the 10-, 50-, and 100-year floods were taken from the Lexington County DPD study. Peak discharges for the 500-year flood were obtained graphically through extrapolation of the probability distribution.

Peak discharges for Tributary SM-3 were determined by using the computed discharges from the effective FIS. Drainage area relationships were used to adjust the peak discharges for changes in runoff due to changes in the watershed area.

The revised hydrologic analyses for Stoop Creek were performed using the USACE HEC-1 computer program to establish peak discharge-frequency relationships for floods of the selected recurrence intervals. The discharges for Stoop Creek were developed from the hydrologic analyses from the February 4, 1987, FIS for the City of Columbia (Reference 22).

Revised Analyses for the February 9, 2000, Countywide FIS

The revised hydrologic analyses were performed using the USACE HEC-1 Flood Hydrograph Package (Reference 19) (HEC-1). The SCS dimensionless unit hydrograph is used as the method to calculate the hydrograph for each subbasin. The Muskingum method is used for the routing methodology. The raw data for the drainage areas, curve numbers, lag and routing times are obtained from USGS Quadrangle Maps (Reference 23). The hypothetical storm information is obtained from Technical Paper No. 40 (Reference 20).

The detailed study areas are divided into two categories, the Twelve Mile Creek watershed, and the Congaree Creek watershed. The Twelve Mile Creek watershed contains Fourteen Mile Creek and Twelve Mile Creek. The Congaree Creek watershed contains First Creek, Second Creek, Bear Creek, Hunt Branch, Lick Fork Branch, Red Bank Creek, Savana Branch and Congaree Creek. The revised discharges on Fourteen Mile Creek and Twelve Mile Creek reasonably compared with the discharges in the effective study, so the models were extended. The Congaree Creek discharges did not compare well with those used in the effective study, so the model was replaced using the revised discharges. Within the studied area there are two USGS streamflow gages. The gage station located on Congaree Creek near the City of Cayce (No. 02168500) was in operation from 1960 to 1980. The gage station located on Savana Branch near the City of Cayce (No. 02169540) was in operation from 1968 to 1989. Due to the poor reliability of such a short period of record, the hydrologic models for studied watersheds were calibrated to historical floods using the hydraulic models and historical high water elevations along studied streams.

The Lake Murray stillwater elevation of 362.5 was computed using HEC-1.

This Revision

The Congaree River discharges were developed by analyzing two major contributing watersheds: the Saluda River/Lake Murray watershed and the Broad River watershed. Peak flow records at USGS gaging station No. 02169500 for the Congaree River at Columbia, South Carolina, were analyzed following Bulletin 17B guidelines. These peak discharges were transposed south to the corporate boundary between Lexington County and Calhoun County (Reference 21) The Saluda Dam construction started in the fall of 1927, and was completed in 1930. The USGS gaging station No. 02169500 provides a uniform data set from water year 1931 to the present date. In water years 1928 and 1930, during construction of the Saluda Dam, two large floods occurred. In addition, there are records of annual maximum flows on the Broad River at Richtex (USGS gaging station No. 02161500) from 1925 on, occurring under uniform basin conditions. The peak flow records from these gages are also incorporated into the analysis.

A summary of the drainage area-peak discharge relationships for all of the streams studied by detailed methods is shown in Table 4, "Summary of Discharges."

TABLE 4 - SUMMARY OF DISCHARGES

FLOODING SOURCE AND LOCATION	DRAINAGE AREA (sq. miles)	PEAK DISCHARGES (cfs)			
		10-YEAR	50-YEAR	100-YEAR	500-YEAR
BIG BRANCH					
At Fish Hatchery Road	1.0	388	744	929	1,485
CONGAREE CREEK					
Upstream of confluence of Six Mile Creek	121.9	3,460	6,880	9,320	18,900
Upstream of U.S. Route 321	120.1	3,490	6,940	9,490	9,600
Upstream of confluence of Savana Branch	108.9	3,380	6,670	9,200	19,400
Upstream of confluence of First Creek	72.4	2,640	5,250	6,940	13,300
Downstream of confluence of Red Bank Creek	68.4	2,610	5,220	6,950	13,500
Upstream of confluence of Red Bank Creek	36.5	1,460	2,980	4,040	8,230
Downstream of Hunt Pond Dam	35.1	1,450	2,970	4,050	8,360
Upstream of Hunt Pond Dam	35.1	1,580	3,190	4,220	8,070
At upstream end of Hunt Pond	34.6	1,580	3,180	4,200	8,030
At a point approximately 6,000 feet downstream of Old Orangeburg Road	32.6	1,560	3,150	4,170	7,990
At a point approximately 500 feet upstream of Old Orangeburg Road	27.7	1,510	3,060	4,060	7,800
Upstream of confluence of Scouter Branch	15.2	1,170	2,360	3,120	5,950
Downstream of Moragne Pond	11.4	1,030	2,130	2,830	5,490
Platt Springs Road	5.2	466	981	1,310	2,590

TABLE 4 - SUMMARY OF DISCHARGES - continued

FLOODING SOURCE AND LOCATION	DRAINAGE AREA (sq. miles)	PEAK DISCHARGES (cfs) 10-YEAR	50-YEAR	100-YEAR	500-YEAR
CONGAREE RIVER					
At downstream study limit, Lexington County line	8,109	151,300	247,300	298,400	442,700
At USGS gaging station No. 2169500	7,850	148,000	242,000	292,000	434,000
FIRST CREEK					
At confluence with Congaree Creek	35.5	2,320	4,360	5,930	12,100
At a point approximately 1,900 feet downstream of Dogwood Road	33.9	2,370	4,450	6,120	12,800
At a point approximately 1,900 feet upstream of Dogwood Road	32.1	2,310	4,360	6,020	12,800
Upstream of confluence of Second Creek	14.9	1,570	2,920	3,760	6,750
At a point approximately 2,300 feet downstream of Hutto Pond Dam	14.4	1,530	2,870	3,700	6,670
At a point approximately 3,800 feet upstream of Hutto Pond Dam	11.1	1,250	2,380	3,090	5,650
At a point approximately 1,800 feet downstream of Urquhart Pond Dam	8.8	1,220	2,270	2,930	5,270
At a point approximately 2,000 feet downstream of Woodtrail Drive	4.5	455	948	1,270	2,500
At Woodtrail Drive	4.2	419	889	1,190	2,360
FOURTEEN MILE CREEK					
At Park Road	4.5	1,160	1,830	2,230	3,530
Upstream of confluence of Long Branch	1.9	113	301	432	990
Wise Ferry Road	0.8	93	221	306	690
KINLEY CREEK					
At mouth	7.0	2,280	3,440	3,880	5,570
KOON BRANCH					
At mouth	1.5	960	1,560	1,820	2,590
At southern corporate limits of the Town of Irmo	0.5	510	870	1,040	1,450

TABLE 4 - SUMMARY OF DISCHARGES - continued

FLOODING SOURCE AND LOCATION	DRAINAGE AREA (sq. miles)	PEAK DISCHARGES (cfs) 10-YEAR	50-YEAR	100-YEAR	500-YEAR
LICK FORK BRANCH					
At confluence with Red Bank Creek	4.4	589	1,210	1,610	3,110
Downstream of Lown Pond	3.1	372	837	1,140	2,360
At Kitti Wake Drive	1.4	229	487	651	1,280
RAWLS CREEK					
At mouth	10.3	2,930	4,310	4,810	6,880
At southwest corporate limits of the Town of Irmo	3.2	1,540	2,380	2,720	3,840
Upstream of confluence of Tributary R-2	1.9	1,080	1,730	2,010	2,870
At a point approximately 1,700 feet upstream of Lexington County boundary	0.9	650	1,020	1,185	1,470
RED BANK CREEK					
Upstream of confluence with Congaree Creek	31.9	1,410	2,920	3,880	7,520
Downstream of Durham Pond Dam	31.2	1,390	2,900	3,860	7,510
Upstream of Durham Pond Dam	31.2	1,410	2,920	3,890	7,580
Upstream end of Durham Pond	26.7	1,300	2,740	3,660	7,210
At a point approximately 400 feet downstream of Old Orangeburg Road	23.1	1,220	2,580	3,460	6,840
Downstream of Crystal Lake Dam	20.6	1,160	2,470	3,330	6,630
Upstream of Crystal Lake Dam	20.6	1,260	2,680	3,560	6,900
At upstream end of Crystal Lake	18.0	1,210	2,570	3,430	6,710
At Saxe-Gotha Millpond Dam (Busted)	17.5	1,190	2,540	3,390	6,660
At a point approximately 3,200 feet upstream of Saxe-Gotha Millpond Dam	16.2	1,150	2,470	3,290	6,440
Upstream of confluence of Turkey Creek	8.6	909	2,090	2,780	5,420
At a point approximately 2,200 feet downstream of Private Dam (RBC11)	5.2	786	1,810	2,390	4,550
Downstream of Private Dam (RBC11)	4.5	751	1,740	2,300	4,370
At Calks Ferry Road	2.2	363	741	982	1,890

TABLE 4 - SUMMARY OF DISCHARGES - continued

FLOODING SOURCE AND LOCATION	DRAINAGE AREA (sq. miles)	PEAK DISCHARGES (cfs) 10-YEAR	50-YEAR	100-YEAR	500-YEAR
SALUDA RIVER					
At USGS gage upstream of the City of Columbia corporate limits	2,510	32,000	90,000	105,000	145,000
SAVANA BRANCH					
At confluence with Congaree Creek	7.4	536	1,170	1,670	3,800
Downstream of Columbia Metropolitan Airport runway culvert	6.7	507	1,130	1,610	3,660
Downstream of Pitts Lake Dam	6.2	492	1,110	1,600	3,740
Upstream of Pitts Lake Dam	6.2	677	1,230	1,630	3,100
At a point approximately 2,500 feet upstream of Platt Springs Road	4.2	543	1,020	1,390	2,900
At a point approximately 2,550 feet upstream of Platt Springs Road	3.1	456	799	1,110	2,390
Downstream of Bradley Drive Dam	1.8	136	477	705	1,810
Upstream of Bradley Drive Dam	1.8	383	723	931	1,670
At a point approximately 2,900 feet upstream of Bradley Drive Dam	0.7	146	279	360	650
SECOND CREEK					
At confluence with First Creek	16.7	2,280	4,320	5,990	12,770
At a point approximately 3,200 feet downstream of Gator Road	14.6	644	1,320	2,130	6,490
Downstream of Private Dam (FC15)	11.3	451	1,030	1,640	4,760
Upstream of Private Dam (FC15)	11.3	594	1,320	1,810	3,730
At a point approximately 1,900 feet upstream of Private Dam (FC15)	9.1	465	1,040	1,440	3,090

TABLE 4 - SUMMARY OF DISCHARGES - continued

FLOODING SOURCE AND LOCATION	DRAINAGE AREA (sq. miles)	PEAK DISCHARGES (cfs) 10-YEAR	50-YEAR	100-YEAR	500-YEAR
BEAR CREEK					
Downstream of Feigles Pond	6.2	225	555	793	1,820
HUNT BRANCH					
At a point approximately 6,200 feet upstream of Feigles Pond	2.3	125	295	412	895
SENN BRANCH					
At mouth	2.4	1,270	2,010	2,320	3,290
At Ephrata Drive	1.25	742	1,150	1,355	1,890
At Highway 378	0.67	246	410	498	725
At Dew Drop Lane	0.47	156	275	324	510
At Hebron Drive	0.36	123	210	254	390
SIX MILE CREEK					
At mouth	13.5	2,830	4,300	4,840	7,180
Above Tributary SM-3 confluence	8.8	2,314	3,550	4,023	5,910
Above Tributary SM-5 confluence	5.9	1,910	2,961	3,378	4,918
Above Tributary SM-6 confluence	4.6	1,580	2,510	2,890	4,240
Below Southern Railway	3.83	1,410	2,260	2,620	3,840
STOOP CREEK					
At mouth	4.29	1,642	1,973	2,203	3,141
At Interstate Highway 20	3.96	2,115	2,995	3,483	4,664
At Interstate Highway 26	3.29	1,699	2,450	2,831	3,763
TRIBUTARY CR-1					
At CSX Transportation	1.96	1,203	1,889	2,182	3,059
TRIBUTARY CR-1-1					
At mouth	0.38	471	799	960	1,334
TRIBUTARY K-2					
At Piney Grove Road	1.6	564	854	947	1,180
TRIBUTARY R-2					
At mouth	1.2	820	1,340	1,580	2,250

TABLE 4 - SUMMARY OF DISCHARGES - continued

FLOODING SOURCE AND LOCATION	DRAINAGE AREA (sq. miles)	PEAK DISCHARGES (cfs) 10-YEAR	50-YEAR	100-YEAR	500-YEAR
TRIBUTARY SM-2					
At mouth	0.94	298	477	567	766
At breached dam	0.74	279	448	533	723
TRIBUTARY SM-3					
At mouth	2.5	1,260	2,000	2,310	3,300
At Edmund Road (Highway 302)	2.01	1,130	1,793	2,062	2,959
At Railroad Bridge	1.49	973	1,544	1,776	2,548
At Lexington Drive	1.21	875	1,390	1,600	2,295
TRIBUTARY SM-5					
At mouth	1.3	826	1,362	1,608	2,304
TRIBUTARY TO FOURTEEN MILE CREEK					
At confluence with Fourteen Mile Creek	0.6	410	627	723	930
At a point approximately 1,890 feet upstream of confluence of Fourteen Mile Creek	0.4	266	403	462	600
TWELVE MILE CREEK					
Downstream of Gibson Pond Dam	31.0	1,220	2,490	3,260	6,050
Upstream of Gibson Pond Dam	31.0	1,370	2,590	3,330	5,970
Upstream end of Gibson Pond	30.1	1,360	2,570	3,300	5,920
Downstream of confluence with Boggy Branch	28.9	1,340	2,570	3,300	5,950
Downstream of Barr Lake Dam	27.1	1,300	2,500	3,220	5,800
Upstream end of Barr Lake	25.9	1,330	2,490	3,220	5,830
Downstream of confluence with Hogpen Branch	22.2	1,240	2,380	3,090	5,700
Upstream of confluence with Hogpen Branch	19.5	1,130	2,190	2,860	5,330
Downstream of confluence with Long Creek	16.2	1,050	2,040	2,670	5,010
Downstream of Crout Pond Dam	7.7	503	1,510	1,980	3,670
Upstream of Crout Pond Dam	7.7	847	1,570	2,020	3,630
At Gilbert Town Limits	4.3	641	1,220	1,580	2,880

TABLE 4 - SUMMARY OF DISCHARGES - continued

FLOODING SOURCE AND LOCATION	DRAINAGE AREA (sq. miles)	PEAK DISCHARGES (cfs) 10-YEAR	50-YEAR	100-YEAR	500-YEAR
YOST CREEK					
At mouth	1.21	533	775	886	1,104
At a point approximately 1,300 feet upstream of Coldstream Drive	0.75	467	683	783	975
At a point approximately 115 feet downstream of Lincreek Drive	0.38	427	636	732	894

3.2 Hydraulic Analyses

Analyses of the hydraulic characteristics of flooding from the source studied were carried out to provide estimates of the elevations of floods of the selected recurrence intervals. Users should be aware that flood elevations shown on the FIRM represent rounded whole-foot elevations and may not exactly reflect the elevations shown on the Flood Profiles or in the Floodway Data tables in the FIS report. For construction and/or floodplain management purposes, users are encouraged to use the flood elevation data presented in this FIS in conjunction with the data shown on the FIRM.

Locations of selected cross sections used in the hydraulic analyses are shown on the Flood Profiles (Exhibit 1). For stream segments for which a floodway was computed (Section 4.2), selected cross-section locations are also shown on the FIRM (Exhibit 2).

Flood profiles were drawn showing computed water-surface elevations for floods of the selected recurrence intervals.

The hydraulic analyses for this study were based on unobstructed flow. The flood elevations shown on the profiles are thus considered valid only if hydraulic structures, such as Gibson Pond Dam, Lexington Mill Pond Dam, and Corley Mill Dam, remain unobstructed, operate properly, and do not fail.

All elevations are referenced to the National Geodetic Vertical Datum of 1929 (NGVD 29). Elevation reference marks (ERMs) used in this study are shown on the FIRM; the descriptions of the marks are presented in Elevation Reference Marks (Exhibit 3). ERMs shown on the FIRM represent those used during the preparation of this and previous FISs. The elevations associated with each ERM were obtained and/or developed during FIS production to establish vertical control for determination of flood elevations and floodplain boundaries shown on the FIRM. Users should be aware that these ERM elevations may have changed since the publication of this FIS. To obtain up-to-date elevation information on National Geodetic Survey (NGS) ERMs shown on this map, please contact the

Information Services Branch of the NGS at (301) 713-3242, or visit their website at www.ngs.noaa.gov. Map users should seek verification of non-NGS ERM monument elevations when using these elevations for construction or floodplain management purposes.

Precountywide Analyses

Each community within Lexington County, except for the Towns of Batesburg Leesville, Gilbert, Pelion, and Swansea, has a previously printed FIS report. The hydraulic analyses described in those reports has been compiled and is summarized below.

Cross-section data for the backwater analyses were field surveyed. Cross sections were located at close intervals above or below bridges and culverts in order to compute the significant backwater effects of these structures.

All bridges, dams, and culverts were surveyed to obtain elevation data and structural geometry. Additional cross section information for the Towns of Irmo, Lexington, Pine Ridge, South Congaree, and Springdale was obtained by field surveys and topographic maps at a scale of 1"=200', with a contour interval of 5 feet (Reference 21). Cross section information for a portion of Rawls Creek in the Town of Irmo was obtained from a topographic map at a scale of 1:600 with a contour interval of 1 foot (Reference 24).

Water-surface elevations of floods of the selected recurrence intervals were computed using the USACE HEC-2 step-backwater computer program (Reference 25).

Starting water-surface elevations were computed using the slope/area method for Twelve Mile Creek, within the Town of Lexington. In the Town of Irmo, starting water-surface elevations for Rawls Creek and Koon Branch were obtained from hydraulic studies conducted on the lower reaches of these streams. The starting water-surface elevations for all other streams studied by detailed methods were determined by coincident peak.

Channel and overbank roughness factors (Manning's "n") used in the hydraulic computations were chosen by engineering judgment and were based on field observations of the stream and floodplain. In the City of Cayce, the Towns of Pine Ridge and South Congaree, and the unincorporated areas, the acceptability of assumed hydraulic factors, cross sections, and hydraulic structure data was checked by computations which duplicated historic floodwater profiles on streams for which historic data were available. For the Towns of Irmo, Lexington, and Springdale, no past flood information was available; therefore, hydraulic models could not be calibrated with actual stage-discharge data. However, the coefficients used and the results obtained compared favorably with calibrated hydraulic model results on other streams in the same area.

For the unincorporated areas, elevations for approximately studied areas were determined based on drainage area, streambed slope, normal depth calculations,

topographic maps, and comparisons with similar streams studied by detailed methods (Reference 23, 26, and 27).
The hydraulic analyses for the unincorporated areas considered possible failure of the dams at Gibson Pond and Lexington Mill Pond on Twelve Mile Creek. Interviews with local residents produced information indicating that both of these structures failed during a flood in April 1936. Several structures located in the floodplain below Lexington Mill Pond were washed away by the surge. No frequency-discharge or elevation data are available on the 1936 flood. Both dams were rebuilt, and the Lexington Mill Pond Dam reconstruction included a gated spillway which can be manually operated to lower the pond level in the event of a flood. The Lexington Mill Pond Dam, with a head differential of 22 feet, appears to be in good condition, and gates appear to be operable. Gibson Pond Dam is not in good condition, but it has a head differential of only 9.5 feet. Since reconstruction following the 1936 flood, neither dam has failed.

Approximate methods based on empirical model study results were used to obtain estimates of the effect of total instantaneous failure of both dams at the time of the 100-year flood peak. The results indicated that the additional surge from Gibson Pond would raise the natural 100-year flood peak approximately 4 feet between Gibson Pond and Lexington Mill Pond. The surge from Lexington Mill Pond would raise the natural 100-year flood crest immediately below the dam by approximately 10 feet. These calculations were designed to determine the worst situation that could occur during a 100-year flood to provide upper limits for engineering judgment decisions. On the other hand, if ample flood warnings were received in time for the Lexington Mill Pond gate to be opened and the pond drawn down, the natural 100-year flood crest below Lexington Mill Pond could be reduced significantly.

If one or both of the dams break during a major flood, the break is likely to be partial and occur in several stages. The break or breaks may occur before, during, or after the flood crest, or in various stages during the entire flood. The flood gate at Lexington Mill Pond may or may not be opened in time to provide relief. If the gate is not opened, and the Lexington Mill Pond does not fail, the flood below the dam will be equivalent to a flood under natural conditions (with no dam). These factors, and the fact that no failures have occurred since 1936, were considered in formulating a reasonable basis for floodplain management and flood insurance rates in the floodplain of Twelve Mile Creek.

For determination of flood elevations on Twelve Mile Creek, it was assumed that neither Gibson Pond Dam nor Lexington Mill Pond Dam will fail, and that there will be no reduction in flood elevations as a result of natural attenuation or manipulation of the spillway gate at Lexington Mill Pond. Inflow into the system will be equal to outflow.

Revised Analyses for the July 17, 1995, Countywide FIS

Information on the methods used to determine cross sections, water-surface elevations, and roughness factors for the streams revised or restudied as part of the July 17, 1995, FIS is shown below.

Cross sections for the backwater analyses of all detailed study reaches were obtained by field surveys and information obtained from topographic maps at a scale of 1"=200' with a contour interval of 5 feet (Reference 28). Updated information was obtained from orthophoto/topographic maps, dated March 1989, at a scale of 1"=200', with a 2-foot contour interval. Bridges, dams, and culverts were field checked to obtain elevation data and structural geometry.

Additional cross sections for Stoop Creek were determined using information obtained from topographic maps at a scale of 1"=200', with a contour interval of 5 feet (Reference 21).

Water-surface elevations of floods of the selected recurrence intervals were computed using the USACE HEC-2 step-backwater computer program (Reference 29). Starting water-surface elevations for each stream restudied or revised by detailed methods were determined using the slope/area method.

Starting water-surface elevations for each stream restudied or revised by detailed methods were determined using slope/area method.

The calculations for Twelve Mile Creek were based on Corley Mill dam not failing and operating at maximum capacity level. According to the owner of the dam, the dam is maintained at full level annually from the months of November through April to flood the region upstream of Corley Mill Road. During this time the two 24-inch diameter pipes remain open. It is possible to release additional amounts of water when necessary through a series of gates.

Revised Analyses for the February 9, 2000, Countywide FIS

Water-surface elevations of floods of the selected recurrence intervals were computed using the USACE HEC-2 step-backwater computer program (Reference 30). Starting water-surface elevations were calculated using the slope/area method.

This Revision

For this revision, cross sections were obtained by field surveys and information obtained from topographic maps at a scale of 1"=200' with a contour interval of 5 feet (Reference 28). Bridges, dams, and culverts were field checked to obtain elevation data and structural geometry.

It was determined that the levee along the east bank of the Congaree River would affect the flood hazard potential of this area of the county. Therefore, two analyses were computed for this stretch of the Congaree River, one with the levee and one without the levee. The first analysis represents a 100-year elevation on the waterward side of the levee should the levee remain intact. The second analysis represents flood conditions should the levee fail to provide protection against a 100-year event.

The topography of the Congaree River channel and left overbank changes significantly approximately one mile downstream of the City of Columbia. The Congaree River channel becomes shallower with its flood conveyance considerably reduced compared to the channel upstream. The left overbank floodplain is relatively flat without high grounds to contain the flood waters of the Congaree River. The technique used to approximate this flow situation was to assume that the effective one-dimensional overbank flow exists only along a portion of the floodplain available on the left overbank. Flow expansions have been observed to happen at angles of 14 to 20 degrees from the main direction of flow. Effective flow areas in the vicinity of flow expansions and in the vicinity of I-77 road bridge were defined using two-dimensional flow analyses and this assumption.

Channel and overbank roughness factors (Manning's "n") used in the revised hydraulic computations were chosen based on field observations, experience with similar streams, and engineering judgment for both the February 9, 2000, countywide FIS and this revision.

Channel and overbank roughness factors used in the hydraulic computations for all streams studied by detailed methods are listed in Table 5, "Summary of Roughness Coefficients."

TABLE 5 - SUMMARY OF ROUGHNESS COEFFICIENTS

Stream	Channel "n"	Overbank "n"
Big Branch	0.100	0.100-0.120
Congaree Creek	0.028-0.045	0.088-0.160
Congaree River	0.035-0.060	0.110-0.150
Fourteen Mile Creek	0.044-0.047	0.110-0.160
Kinley Creek	0.030-0.120	0.040-0.150
Koon Branch	0.040-0.120	0.040-0.150
Lick Fork Branch	0.035-0.048	0.110-0.160
Rawls Creek	0.040-0.120	0.040-0.150
Red Bank Creek	0.035-0.049	0.110-0.160
Saluda River	0.040-0.120	0.040-0.150
Savana Branch	0.035-0.055	0.110-0.150
Second Creek	0.035-0.046	0.110-0.150
Bear Creek	0.035-0.046	0.110-0.150
Hunt Branch	0.035-0.046	0.110-0.150
Senn Branch	0.030-0.120	0.040-0.150
Six Mile Creek	0.040-0.080	0.040-0.150
Stoop Creek	0.025-0.100	0.060-0.180
Tributary CR-1	0.040-0.120	0.040-0.150
Tributary CR-1-1	0.040-0.120	0.040-0.150
Tributary K-2	0.025-0.100	0.060-0.180
Tributary R-2	0.040-0.120	0.040-0.150
Tributary SM-2	0.025-0.100	0.060-0.180
Tributary SM-3	0.030-0.120	0.040-0.150
Tributary SM-5	0.050-0.110	0.050-0.110
Tributary to Fourteen Mile Creek	0.060-0.080	0.080-0.120
Twelve Mile Creek	0.035-0.048	0.100-0.160
Yost Creek	0.025-0.100	0.060-0.180

3.3 Vertical Datum

All FISs and FIRMs are referenced to a specific vertical datum. The vertical datum provides a starting point against which flood, ground, and structure elevations can be referenced and compared. Until recently, the standard vertical datum in use for newly created or revised FISs and FIRMs was the National Geodetic Vertical Datum of 1929 (NGVD 29). With the finalization of the North American Vertical Datum of 1988 (NAVD 88), many FIS reports and FIRMs are being prepared using NAVD 88 as the referenced vertical datum.

All flood elevations shown in this FIS report and on the FIRM are referenced to NGVD 29. Structure and ground elevations in the community must, therefore, be referenced to NGVD 29. It is important to note that adjacent communities may be referenced to NAVD 88. This may result in differences in base flood elevations across the corporate limits between the communities.

For more information on NAVD 88, see Converting the National Flood Insurance Program to the North American Vertical Datum of 1988, FEMA Publication FIA-20/June 1992, or contact the Vertical Network Branch, National Geodetic Survey, Coast and Geodetic Survey, National Oceanic and Atmospheric Administration, Rockville, Maryland 20910 (Internet address http://www.ngs.noaa.gov).

4.0 FLOODPLAIN MANAGEMENT APPLICATIONS

The NFIP encourages State and local governments to adopt sound floodplain management programs. To assist in this endeavor, each FIS provides 100-year floodplain data, which may include a combination of the following: 10-, 50-, 100-, and 500-year flood elevations; delineations of the 100-year and 500-year floodplains; and 100-year floodway. This information is presented on the FIRM and in many components of the FIS, including Flood Profiles, Floodway Data tables, and Summary of Stillwater Elevation tables. Users should reference the data presented in the FIS as well as additional information that may be available at the local community map repository before making flood elevation and/or floodplain boundary determinations.

4.1 Floodplain Boundaries

To provide a national standard without regional discrimination, the 1-percent annual chance (100-year) flood has been adopted by FEMA as the base flood for floodplain management purposes. The 0.2-percent annual chance (500-year) flood is employed to indicate additional areas of flood risk in the community. For the streams studied in detail, the 100- and 500-year floodplain boundaries have been delineated using the flood elevations determined at each cross section.

Revised Analyses for the July 17, 1995, Countywide FIS

In the Cities of Cayce and West Columbia and the Towns of Irmo, Lexington, Pine Ridge, South Congaree, and Springdale, the boundaries were interpolated between cross sections using topographic maps at a scale of 1"=200' with a contour interval of 5 feet (Reference 21).

For Congaree Creek in the Town of Pine Ridge, and portions of Congaree Creek in the unincorporated areas of Lexington County, the boundaries were interpolated between cross sections using USGS topographic maps at a scale of 1:24,000 with a contour interval of 10 feet, and "Richland and Lexington Counties Joint Planning Commission" topographic maps at a scale of 1:2,400 with a contour interval of 5 feet (References 23 and 28). For the Congaree Creek in the Town of South Congaree, the boundaries were interpolated between cross sections using USGS topographic maps at a scale of 1:24,000 with a contour interval of 10 feet (Reference 23).

For portions of Kinley Creek in the unincorporated areas of Lexington County, the boundaries were interpolated between cross sections using a topographic map at a scale of 1:1,200 (Reference 31).

For the remainder of the streams studied in detail in the unincorporated areas of Lexington County, the boundaries were interpolated between cross sections using topographic maps at scales of 1'=200' and 1:24,000 with contour intervals of 5 and 10 feet, respectively (References 21 and 23).

Revised Analyses for the February 9, 2000, Countywide FIS

For the February 9, 2000, FIS, the boundaries were interpolated between cross sections using topographic maps with a contour interval of 5 feet obtained from the Lexington County Department of Planning and Development (Reference 28). Additionally, floodplain boundaries for streams that were not restudied in detail as part of this revision were modified to reflect updated topographic information source and reference.

In the City of Cayce and the Towns of Irmo, Lexington, Pine Ridge, and Springdale, for the streams studied by approximate methods, the 100-year floodplain boundaries were developed from normal depth calculations and topographic maps (Reference 21).

For the streams studied by approximate methods in the unincorporated areas, the 100-year floodplain boundaries were determined through use of topographic maps at scales of 1:24,000 and 1:50,000, with contour intervals of 10 and 20 feet, respectively; Flood Prone Area Maps; a Flood Hazard Boundary Map; available records; engineering judgment; and the determined elevations as discussed in Section 3.2 (References 23, 26, 27, and 32).

This Revision

For this revision, the boundaries were interpolated between cross sections using topographic maps with a contour interval of 5 feet obtained from the Lexington County Department of Planning and Development (Reference 28).

The 100- and 500-year floodplain boundaries are shown on the FIRM (Exhibit 2). On this map, the 100-year floodplain boundary corresponds to the boundary of the areas of special flood hazards (Zones A and AE), and the 500-year floodplain boundary corresponds to the boundary of areas of moderate flood hazards. In cases where the 100- and 500-year floodplain boundaries are close together, only the 100-year floodplain boundary has been shown. Small areas within the floodplain boundaries may lie above the flood elevations but cannot be shown due to limitations of the map scale and/or lack of detailed topographic data.

For the streams studied by approximate methods, only the 100-year floodplain boundary is shown on the FIRM (Exhibit 2).

4.2 Floodways

Encroachment on floodplains, such as structures and fill, reduces flood-carrying capacity, increases flood heights and velocities, and increases flood hazards in areas beyond the encroachment itself. One aspect of floodplain management involves balancing the economic gain from floodplain development against the resulting increase in flood hazard. For purposes of the NFIP, a floodway is used as a tool to assist local communities in this aspect of floodplain management. Under this concept, the area of the 100-year floodplain is divided into a floodway and a floodway fringe. The floodway is the channel of a stream, plus any adjacent floodplain areas, that must be kept free of encroachment so that the 100-year flood can be carried without substantial increases in flood heights. Minimum federal standards limit such increases to 1.0 foot, provided that hazardous velocities are not produced. The floodways in this study are presented to local agencies as a minimum standard that can be adopted directly or that can be used as a basis for additional floodway studies.

The floodways presented in this countywide study were computed for certain stream segments on the basis of equal conveyance reduction from each side of the floodplain. Floodway widths were computed at cross sections. Between cross sections, the floodway boundaries were interpolated. The results of the floodway computations are tabulated for selected cross sections (Table 6). The computed floodways are shown on the FIRM (Exhibit 2). In cases where the floodway and 100-year floodplain boundaries are either close together or collinear, only the floodway boundary is shown. Portions of the floodway for the Congaree River, the Saluda River, and Stoop Creek extend beyond the county boundary.

The floodway was computed assuming that the levee fails. The Floodway Data table for this area shows regulatory elevations for the "with levee" scenario. However, the "With Floodway" and "Without Floodway" elevations are based solely on the "without levee" scenario for the entire length of the Congaree River.

In the unincorporated areas of Lexington County, floodways for the streams that were not revised were obtained from floodway maps published by the Central Midlands Regional Planning Council, with a photograph dated February 1973 with a contour interval of 5 feet and a scale of 1"=200' (Reference 21).

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER SURFACE ELEVATION (FEET NGVD)			
CROSS SECTION	DISTANCE[1]	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
Congaree Creek								
A	24.780	1.020	4.984	1.9	141.8	125.7[3]	126.7	1.0
B	39.800	320	2.192	4.3	141.8	133.1[3]	133.9	0.8
C	40.600	80	2.487	3.8	141.8	134.3[3]	135.2	0.9
D	41.600	400	1.973	4.8	141.8	139.9[3]	140.6	0.7
E	44.600	780	7.034	1.3	142.9	142.9	143.5	0.6
F	51.200	800	5.747	1.7	143.1	143.1	143.9	0.8
G	53.400	805	4.758	2.0	143.4	143.4	144.4	1.0
H	55.500	880[2]	4.112	2.2	144.4	144.4	145.4	1.0
I	61.900	443	1.160	7.9	148.3	148.3	148.4	0.1
J	62.250	443	1.347	6.8	148.8	148.8	148.8	0.0
K	68.000	178	1.027	6.8	155.8	155.8	156.8	1.0
L	69.100	90	585	11.9	157.5	157.5	157.5	0.0
M	73.500	530	3.087	2.2	160.8	160.8	161.5	0.7
N	78.100	640	2.112	3.3	163.4	163.4	164.4	1.0
O	79.791	450	2.101	1.9	165.6	165.6	166.6	1.0
P	80.907	225	1.146	3.5	167.9	167.9	168.4	0.5
Q	81.453	149	844	4.8	169.1	169.1	169.9	0.8
R	82.463	342	1.754	2.3	171.6	171.6	172.5	0.9
S	83.114	203	961	4.2	172.8	172.8	173.5	0.7
T	85.802	378	4.302	1.0	185.5	185.5	186.3	0.8
U	86.624	180	1.893	2.2	185.5	185.5	186.3	0.8
V	87.560	250	1.699	2.5	185.5	185.5	186.2	0.7
W	89.271	213	1.236	3.4	188.3	188.3	189.2	0.9
X	90.217	579	3.845	1.1	189.6	189.6	190.6	1.0

[1]Feet above confluence with Congaree River
[2]Combined Savana Branch/Congaree Creek floodway
[3]Elevation computed without consideration of backwater effects from Congaree River

TABLE 6

FEDERAL EMERGENCY MANAGEMENT AGENCY

LEXINGTON COUNTY, SC AND INCORPORATED AREAS

FLOODWAY DATA

CONGAREE CREEK

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER SURFACE ELEVATION (FEET NGVD)			
CROSS SECTION	DISTANCE[1]	WIDTH[2] (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY[6]	WITH FLOODWAY	INCREASE
Congaree River								
A	226,700	15,299	142,884	2.1	132.6	131.8	132.5	0.7
B	234,100	17,106	149,962	2.0	135.3	133.9	134.6	0.7
C	246,700	10,240[3]	133,962	2.2	139.9	137.4	138.3	0.9
D	249,300	10,500[3]	111,152	2.7	141.7	138.1	139.0	0.9
E	253,400	4,372	42,830	7.0	142.8	139.2	140.2	1.0
F	256,100	626	22,108	13.5	145.7	142.6	143.2	0.6
G	258,400	602	21,580	13.8	146.9	144.5	145.1	0.6
H	260,400	1,148[4]	37,376	8.0	150.5	148.7	149.1	0.4
I	261,200	1,314	43,450	6.9	151.7	150.1	150.4	0.3
J	262,900	1,391	41,953	7.1	151.9	150.4	150.8	0.4
K	264,500	1,470	43,655	6.8	152.4	151.0	151.4	0.4
L	265,200	1,090	35,724	8.4	152.5	151.1	151.3	0.2
M	266,900	810	30,955	9.4	152.6	151.2	151.6	0.4
N	267,750	1,050	34,750	8.4	153.2	151.9	152.4	0.5
O	267,850	1,437	48,866	6.0	153.2	151.9	152.4	0.5
P	268,920	1,649	48,503	6.0	153.9	152.7	153.2	0.5
Q	269,250	1,648	45,308	6.4	154.0	152.7	153.2	0.5
R	270,450	2,294	51,343	5.7	154.3	153.1	153.7	0.6
S	272,010	2,293[5]	53,644	5.4	154.7	153.6	154.1	0.5

[1]Feet above mouth
[2]Width extends beyond county boundary
[3]Combined Congaree River/Congaree Creek floodway
[4]Combined Congaree River/Rocky Branch floodway
[5]Combined Saluda, Broad, and Congaree River floodway
[6]Elevation computed without consideration of the hydraulic effects of the levee (located in Richland County)

TABLE 6

FEDERAL EMERGENCY MANAGEMENT AGENCY

LEXINGTON COUNTY, SC AND INCORPORATED AREAS

FLOODWAY DATA

CONGAREE RIVER

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER SURFACE ELEVATION (FEET NGVD)			
CROSS SECTION	DISTANCE[1]	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
Saluda River								
A	3.300	800[2]	6.149	17.1	153.5	144.5[3]	144.5	0.0
B	5.000	530[2]	10.072	10.4	156.2	156.2	156.7	0.5
C	7.100	726[2]	15.662	6.7	160.3	160.3	160.8	0.5
D	10.870	617[2]	9.232	11.4	168.5	168.5	169.0	0.5
E	13.600	841[2]	14.951	7.0	175.1	175.1	175.9	0.8
F	15.300	1.174[2]	16.692	6.3	177.3	177.3	178.0	0.7
G	17.000	805[2]	14.345	7.3	178.9	178.9	179.5	0.6
H	18.800	1.428	23.432	4.5	181.7	181.7	182.3	0.6
I	22.000	939	15.390	6.8	184.1	184.1	184.8	0.7
J	24.800	1.030	19.348	5.4	187.5	187.5	188.4	0.9
K	26.000	1.335	23.330	4.5	188.4	188.4	189.3	0.9
L	28.600	1.700	30.121	3.5	189.7	189.7	190.6	0.9
M	31.500	2.010	26.530	4.0	191.0	191.0	191.8	0.8
N	35.800	3.000	47.326	2.2	192.4	192.4	193.4	1.0
O	37.500	960	14.900	7.0	192.4	192.4	193.4	1.0

[1]Feet above confluence with Congaree River
[2]Width extends beyond county boundary
[3]Elevation computed without consideration of backwater effects from the Congaree River

TABLE 6

FEDERAL EMERGENCY MANAGEMENT AGENCY

LEXINGTON COUNTY, SC AND INCORPORATED AREAS

FLOODWAY DATA

SALUDA RIVER

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER SURFACE ELEVATION (FEET NGVD)			
CROSS SECTION	DISTANCE[1]	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
Six Mile Creek								
A	3.150	400	1.000	4.8	140.2	128.0[2]	129.0	1.0
B	6.450	314	2.381	2.0	140.2	134.1[2]	135.1	1.0
C	9.200	455	1.983	2.4	140.2	138.5[2]	139.5	1.0
D	12.700	205	910	5.3	145.7	145.7	146.0	0.3
E	13.350	180	1.381	3.5	148.5	148.5	149.1	0.6
F	13.700	260	2.672	1.8	151.8	151.8	152.5	0.7
G	15.600	473	3.637	1.3	152.7	152.7	153.7	1.0
H	17.150	355	2.092	1.9	153.8	153.8	154.8	1.0
I	17.450	440	3.663	1.1	157.2	157.2	158.1	0.9
J	18.850	440	2.705	1.5	158.0	158.0	159.0	1.0
K	19.750	147	1.414	2.8	163.6	163.6	164.4	0.8
L	20.800	443	2.899	2.8	164.1	164.1	165.1	1.0
M	21.100	195	1.618	0.4	169.3	169.3	169.5	0.2
N	21.500	180	1.394	0.4	169.6	169.6	170.4	0.8
O	21.850	450	4.644	0.9	173.3	173.3	174.3	1.0
P	22.300	175	2.362	1.7	173.3	173.3	174.3	1.0
Q	22.500	290	3.270	1.2	178.7	178.7	179.7	1.0
R	23.700	170	910	4.4	178.8	178.8	179.7	0.9
S	24.400	100	404	9.9	183.3	183.3	183.7	0.4
T	24.700	130	1.579	2.5	189.3	189.3	190.3	1.0
U	24.900	350	1.918	2.1	191.6	191.6	192.4	0.8
V	25.300	200	1.193	3.4	191.8	191.8	192.6	0.8
W	25.700	95	713	4.7	194.1	194.1	195.0	0.9
X	25.850	170	2.099	1.6	194.6	194.6	195.6	1.0

[1]Feet above confluence with Congaree Creek
[2]Elevation computed without consideration of backwater effects from Congaree River

TABLE 6

FEDERAL EMERGENCY MANAGEMENT AGENCY

LEXINGTON COUNTY, SC AND INCORPORATED AREAS

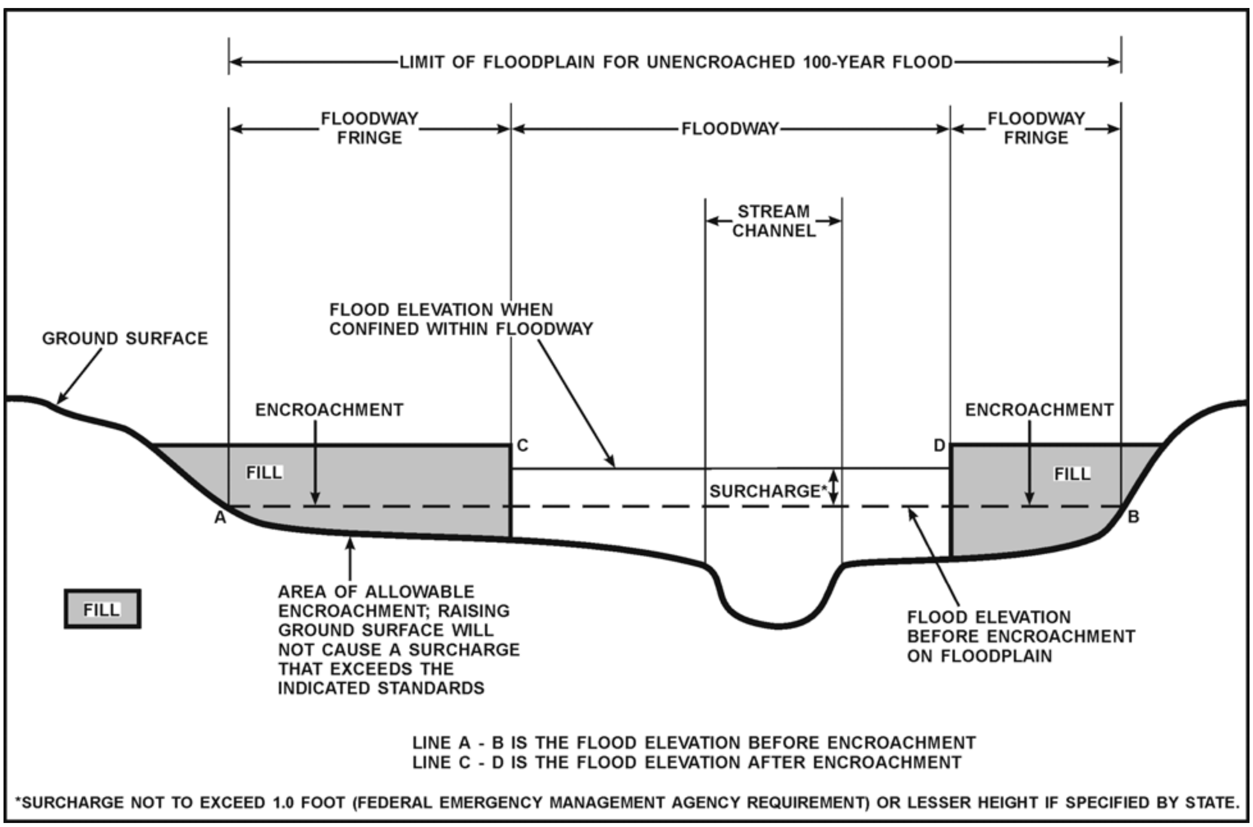
FLOODWAY DATA

SIX MILE CREEK

Encroachment into areas subject to inundation by floodwaters having hazardous velocities aggravates the risk of flood damage, and heightens potential flood hazards by further increasing velocities. A listing of stream velocities at selected cross sections is provided in Table 6, "Floodway Data." In order to reduce the risk of property damage in areas where the stream velocities are high, the community may wish to restrict development in areas outside the floodway.

Near the mouths of streams studied in detail, floodway computations are made without regard to flood elevations on the receiving water body. Therefore, "Without Floodway" elevations presented in Table 6 for certain downstream cross sections of Congaree Creek, Kinley Creek, Koon Branch, Lick Fork Branch, Rawls Creek, the Saluda River, Senn Branch, Six Mile Creek, Stoop Creek, and Twelve Mile Creek are lower than the regulatory flood elevations in that area, which must take into account the 100-year flooding due to backwater from other sources.

The area between the floodway and 100-year floodplain boundaries is termed the floodway fringe. The floodway fringe encompasses the portion of the floodplain that would be completely obstructed without increasing the water-surface elevation of the 100-year flood by more than 1.0 foot at any point. Typical relationships between the floodway and the floodway fringe and their significance to floodplain development are shown in Figure 2.



FLOODWAY SCHEMATIC Figure 2

5.0 INSURANCE APPLICATIONS

For flood insurance rating purposes, flood insurance zone designations are assigned to a community based on the results of the engineering analyses. The zones are as follows:

Zone A

Zone A is the flood insurance rate zone that corresponds to the 100-year floodplains that are determined in the FIS by approximate methods. Because detailed hydraulic analyses are not performed for such areas, no base flood elevations or depths are shown within this zone.

Zone AE

Zone AE is the flood insurance rate zone that corresponds to the 100-year floodplains that are determined in the FIS by detailed methods. In most instances, whole-foot base flood elevations derived from the detailed hydraulic analyses are shown at selected intervals within this zone.

Zone AH

Zone AH is the flood insurance rate zone that corresponds to the areas of 100-year shallow flooding (usually areas of ponding) where average depths are between 1 and 3 feet. Whole-foot base flood elevations derived from the detailed hydraulic analyses are shown at selected intervals within this zone.

Zone AO

Zone AO is the flood insurance rate zone that corresponds to the areas of 100-year shallow flooding (usually sheet flow on sloping terrain) where average depths are between 1 and 3 feet. Average whole-foot depths derived from the detailed hydraulic analyses are shown within this zone.

Zone A99

Zone A99 is the flood insurance rate zone that corresponds to areas of the 100-year floodplain that will be protected by a Federal flood protection system where construction has reached specified statutory milestones. No base flood elevations or depths are shown within this zone.

Zone V

Zone V is the flood insurance rate zone that corresponds to the 100-year coastal floodplains that have additional hazards associated with storm waves. Because approximate hydraulic analyses are performed for such areas, no base flood elevations are shown within this zone.

Zone VE

Zone VE is the flood insurance rate zone that corresponds to the 100-year coastal floodplains that have additional hazards associated with storm waves. Whole-foot base flood elevations derived from the detailed hydraulic analyses are shown at selected intervals within this zone.

Zone X

Zone X is the flood insurance rate zone that corresponds to areas outside the 500-year floodplain, areas within the 500-year floodplain, and to areas of 100-year flooding where average depths are less than 1 foot, areas of 100-year flooding where the contributing drainage area is less than 1 square mile, and areas protected from the 100-year flood by levees. No base flood elevations or depths are shown within this zone.

Zone D

Zone D is the flood insurance rate zone that corresponds to unstudied areas where flood hazards are undetermined, but possible.

6.0 FLOOD INSURANCE RATE MAP

The FIRM is designed for flood insurance and floodplain management applications.

For flood insurance applications, the map designates flood insurance rate zones as described in Section 5.0 and, in the 100-year floodplains that were studied by detailed methods, shows selected whole-foot base flood elevations or average depths. Insurance agents use the zones and base flood elevations in conjunction with information on structures and their contents to assign premium rates for flood insurance policies.

For floodplain management applications, the map shows by tints, screens, and symbols, the 100- and 500-year floodplains. Floodways and the locations of selected cross sections used in the hydraulic analyses and floodway computations are shown where applicable.

The countywide FIRM presents flooding information for the entire geographic area of Lexington County. Previously, separate Flood Hazard Boundary Maps and/or FIRMs were prepared for each identified flood-prone incorporated community and the unincorporated areas of the county. This countywide FIRM also includes flood hazard information that was presented separately on Flood Boundary and Floodway Maps, where applicable. Historical data relating to the maps prepared for each community, up to and including the July 17, 1995, countywide FIS, are presented in Table 7, "Community Map History."

COMMUNITY NAME	INITIAL IDENTIFICATION	FLOOD HAZARD BOUNDARY MAP REVISIONS DATE	FIRM EFFECTIVE DATE	FIRM REVISIONS DATE
Batesburg Leesville, Town of	June 28, 1974	None	June 10, 1977	July 17, 1995
Cayce, City of	May 1, 1974	April 30, 1976	May 1, 1980	January 5, 1989 July 17, 1995
Columbia, City of	September 6, 1974	June 30, 1978	June 15, 1981	December 2, 1988 July 17, 1995
Gilbert, Town of	October 25, 1974	None	July 17, 1995	
Irmo, Town of	May 17, 1974	April 30, 1976 January 13, 1978	May 1, 1980	January 3, 1985 April 16, 1991 July 17, 1995
Lexington, Town of	June 7, 1974	December 10, 1976 July 22, 1977	May 1, 1980	July 17, 1995
Lexington County (Unincorporated Areas)	September 6, 1974	June 30, 1978	June 15, 1981	December 2, 1988 July 17, 1995
Pelion, Town of	August 9, 1974	June 4, 1976	July 17, 1995	
Pine Ridge, Town of	June 21, 1974	August 6, 1976	March 18, 1980	Deceber 2, 1988 July 17, 1995

TABLE 7

FEDERAL EMERGENCY MANAGEMENT AGENCY

LEXINGTON COUNTY, SC AND INCORPORATED AREAS

COMMUNITY MAP HISTORY

COMMUNITY NAME	INITIAL IDENTIFICATION	FLOOD HAZARD BOUNDARY MAP REVISIONS DATE	FIRM EFFECTIVE DATE	FIRM REVISIONS DATE
South Congaree, Town of	May 17, 1974	June 11, 1976	September 28, 1979	December 2, 1988 July 17, 1995
Springdale, Town of	June 28, 1974	July 30, 1976 June 3, 1977	May 1, 1980	July 17, 1995
Swansea, Town of	June 7, 1974	None	June 10, 1977	July 17, 1995
West Columbia, City of	June 28, 1974	July 9, 1976 June 3, 1977	February 15, 1979	October 8, 1982 July 17, 1995

TABLE 7

FEDERAL EMERGENCY MANAGEMENT AGENCY

LEXINGTON COUNTY, SC AND INCORPORATED AREAS

COMMUNITY MAP HISTORY

7.0 OTHER STUDIES

FISs have been prepared for Richland County, South Carolina and Incorporated Areas and the Unincorporated Areas of Newberry, Orangeburg, Aiken, and Saluda Counties, South Carolina (References 1, 33, 34, 35, and 36).

Because it is based on more up-to-date analyses, this FIS supersedes the previously printed FIS for Lexington County (Reference 37).

8.0 LOCATION OF DATA

Information concerning the pertinent data used in the preparation of this study can be obtained by contacting the FEMA, Mitigation Division, Koger Center - Rutgers Building, 3003 Chamblee Tucker Road, Atlanta, Georgia 30341.

9.0 BIBLIOGRAPHY AND REFERENCES

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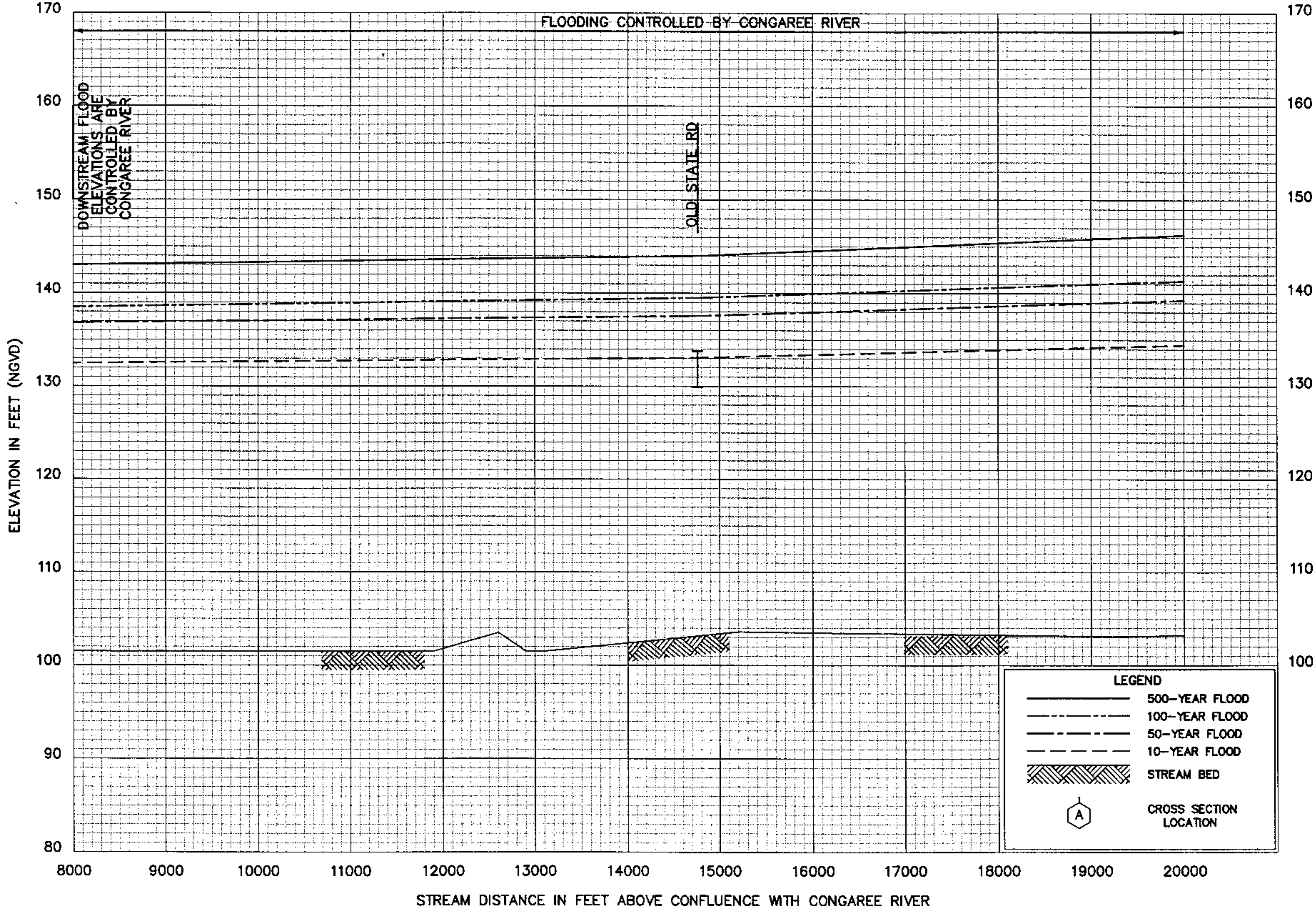


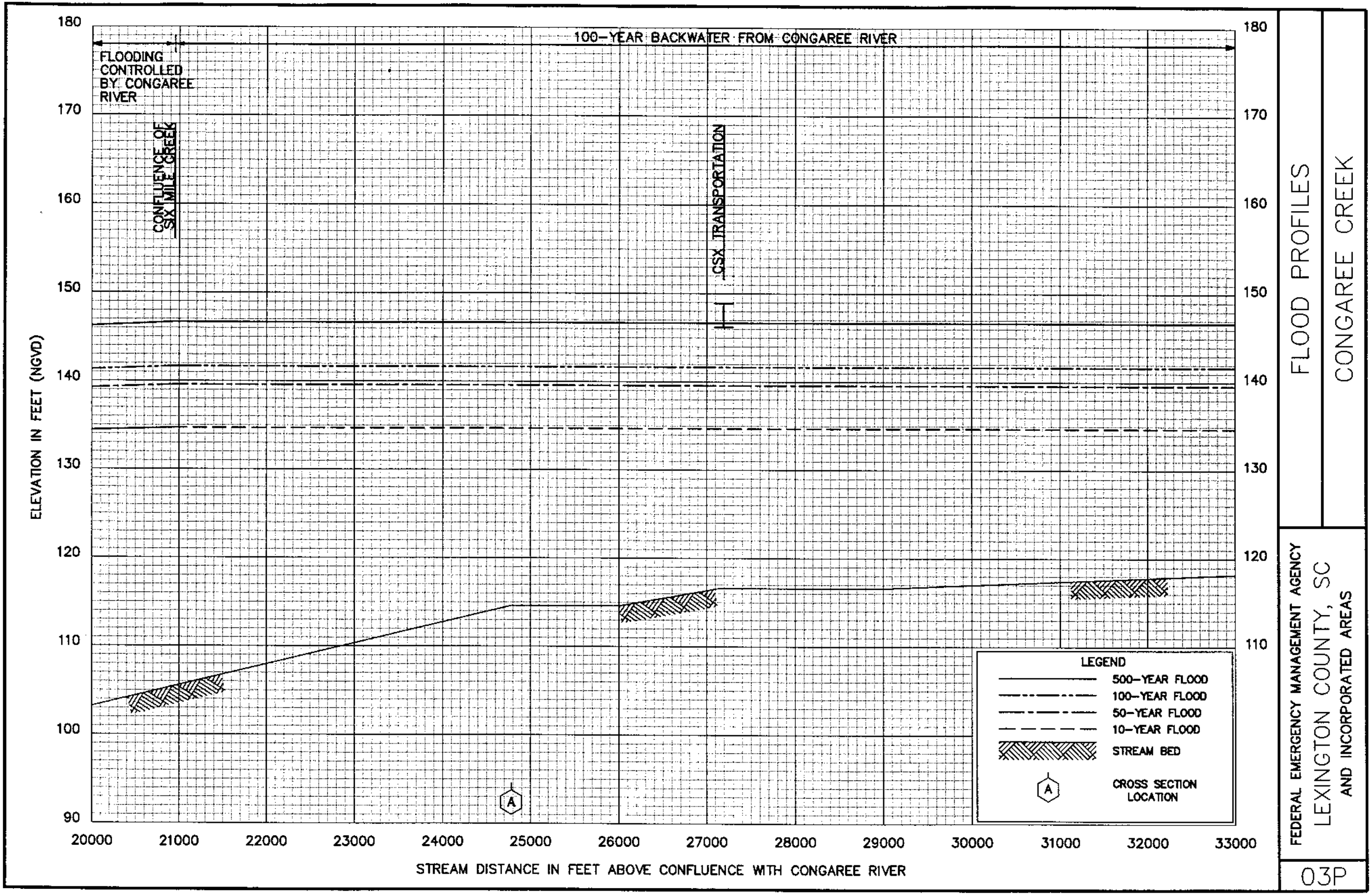
FLOOD PROFILES

CONGAREE CREEK

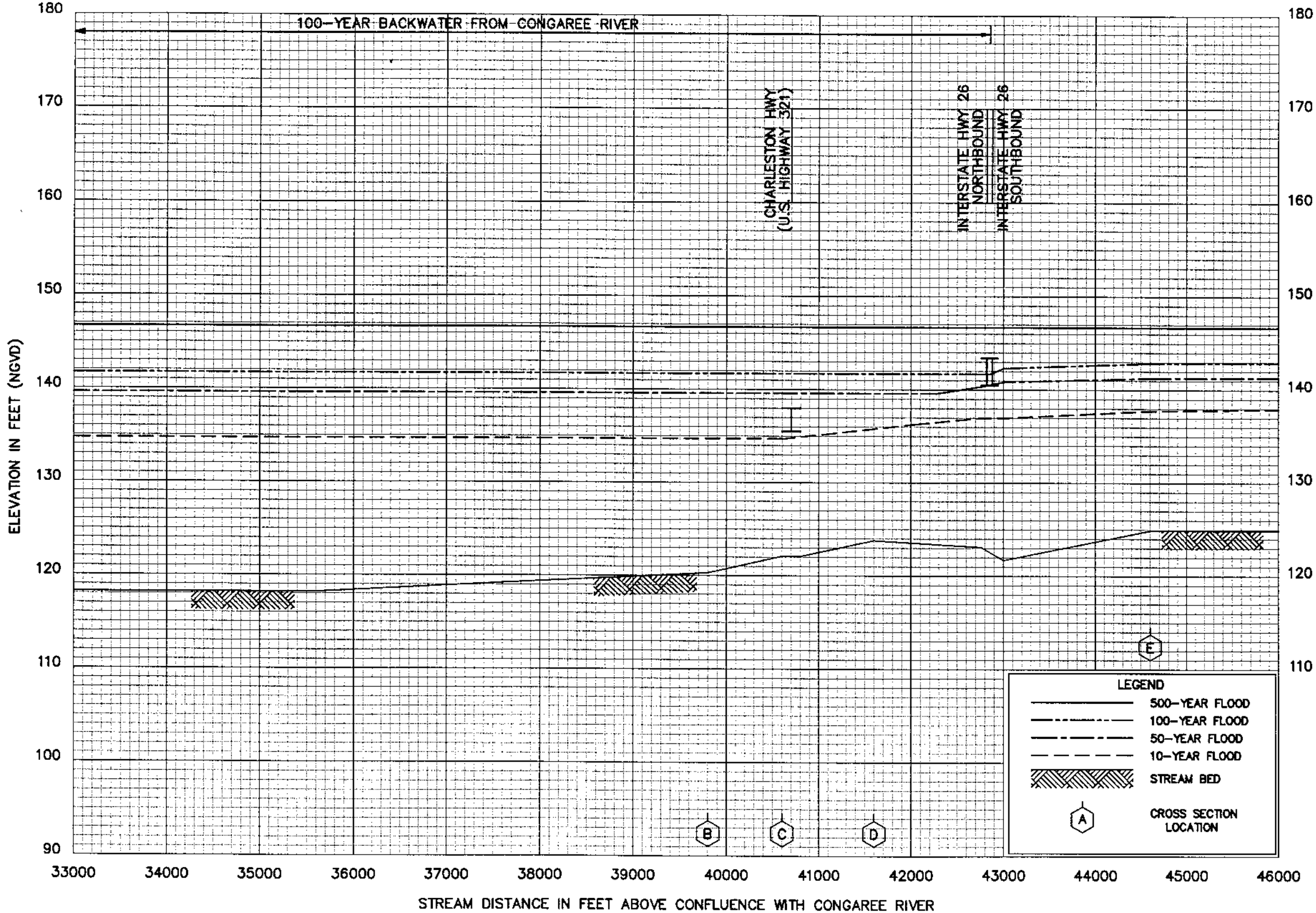
FEDERAL EMERGENCY MANAGEMENT AGENCY

LEXINGTON COUNTY, SC AND INCORPORATED AREAS

02P



100-YEAR BACKWATER FROM CONGAREE RIVER
FLOODING CONTROLLED BY CONGAREE RIVER
CONFLUENCE OF SIX MILE CREEK
CSX TRANSPORTATION
ELEVATION IN FEET (NGVD)
180
170
160
150
140
130
120
110
100
90
20000
21000
22000
23000
24000
25000
26000
27000
28000
29000
30000
31000
32000
33000
STREAM DISTANCE IN FEET ABOVE CONFLUENCE WITH CONGAREE RIVER
LEGEND
500-YEAR FLOOD
100-YEAR FLOOD
50-YEAR FLOOD
10-YEAR FLOOD
STREAM BED
CROSS SECTION LOCATION
A
FLOOD PROFILES
CONGAREE CREEK
FEDERAL EMERGENCY MANAGEMENT AGENCY
LEXINGTON COUNTY, SC
AND INCORPORATED AREAS
03P



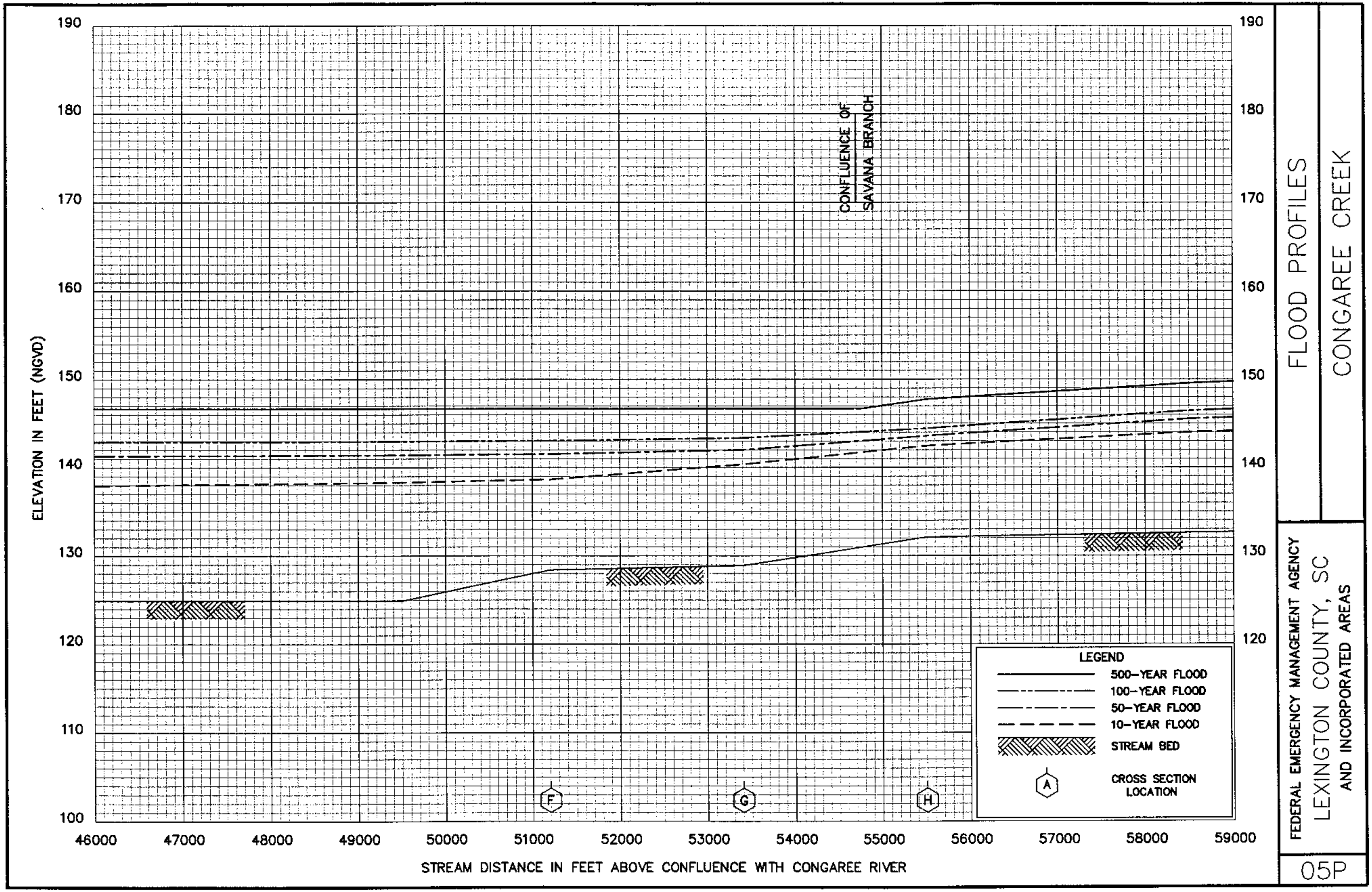
FLOOD PROFILES

CONGAREE CREEK

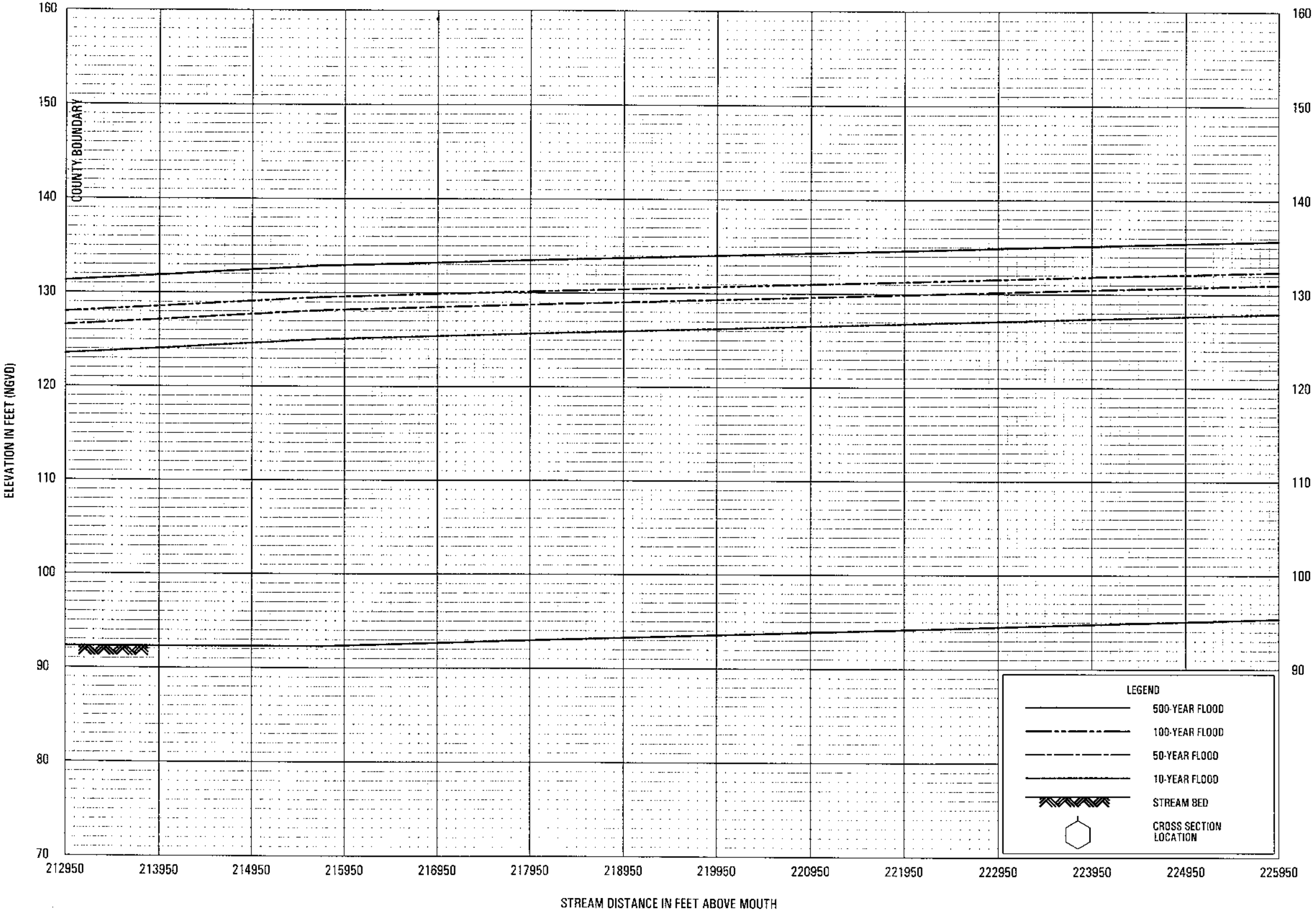
FEDERAL EMERGENCY MANAGEMENT AGENCY

LEXINGTON COUNTY, SC AND INCORPORATED AREAS

04P



ELEVATION IN FEET (NGVD)
190
180
170
160
150
140
130
120
110
100
46000
47000
48000
49000
50000
51000
52000
53000
54000
55000
56000
57000
58000
59000
STREAM DISTANCE IN FEET ABOVE CONFLUENCE WITH CONGAREE RIVER
CONFLUENCE OF SAVANA BRANCH
F
G
H
LEGEND
500-YEAR FLOOD
100-YEAR FLOOD
50-YEAR FLOOD
10-YEAR FLOOD
STREAM BED
A
CROSS SECTION LOCATION
FLOOD PROFILES
CONGAREE CREEK
FEDERAL EMERGENCY MANAGEMENT AGENCY
LEXINGTON COUNTY, SC
AND INCORPORATED AREAS
05P



FLOOD PROFILES

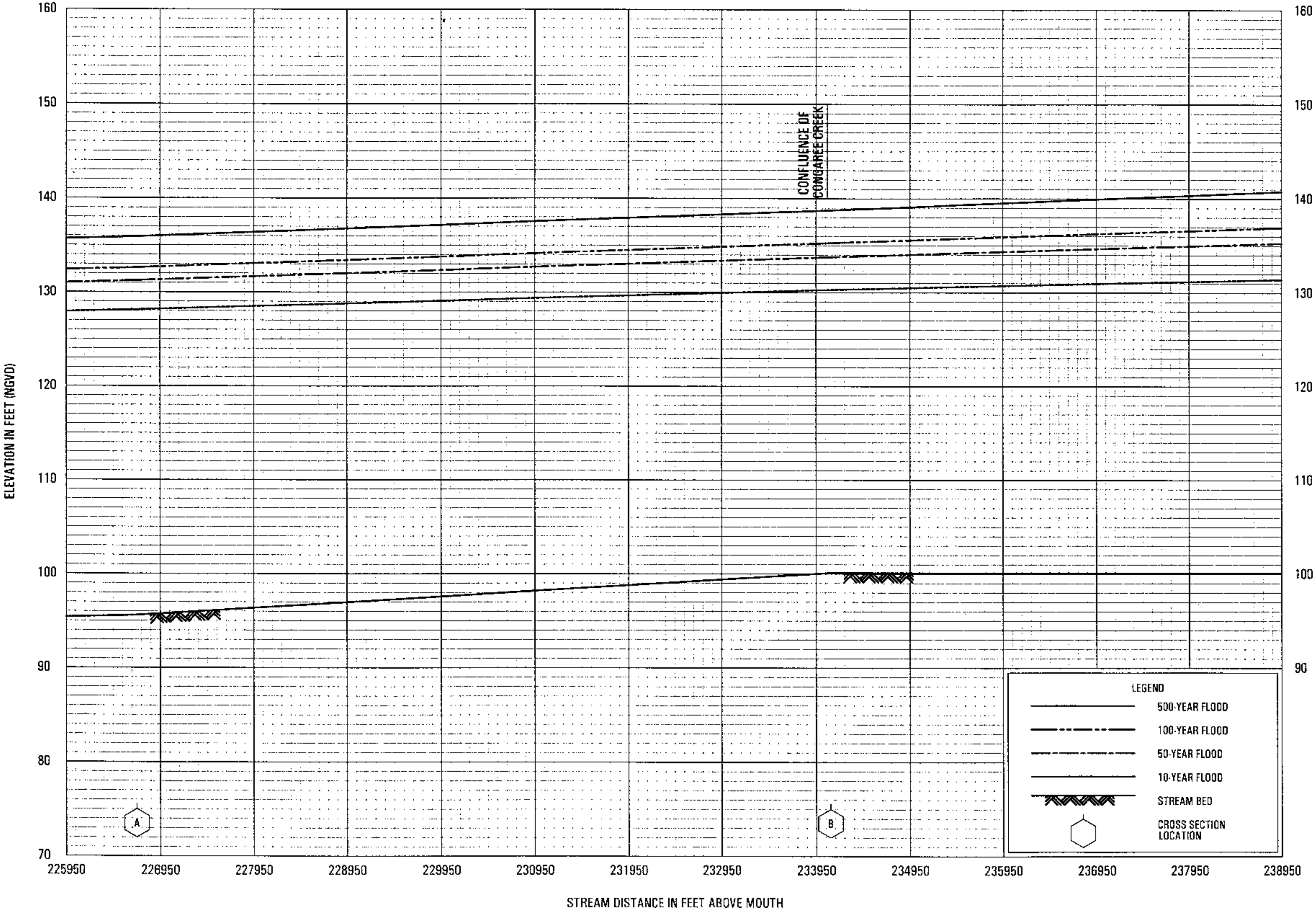
CONGAREE RIVER (WITH LEVEE)

FEDERAL EMERGENCY MANAGEMENT AGENCY

LEXINGTON COUNTY, SC

AND INCORPORATED AREAS

12P



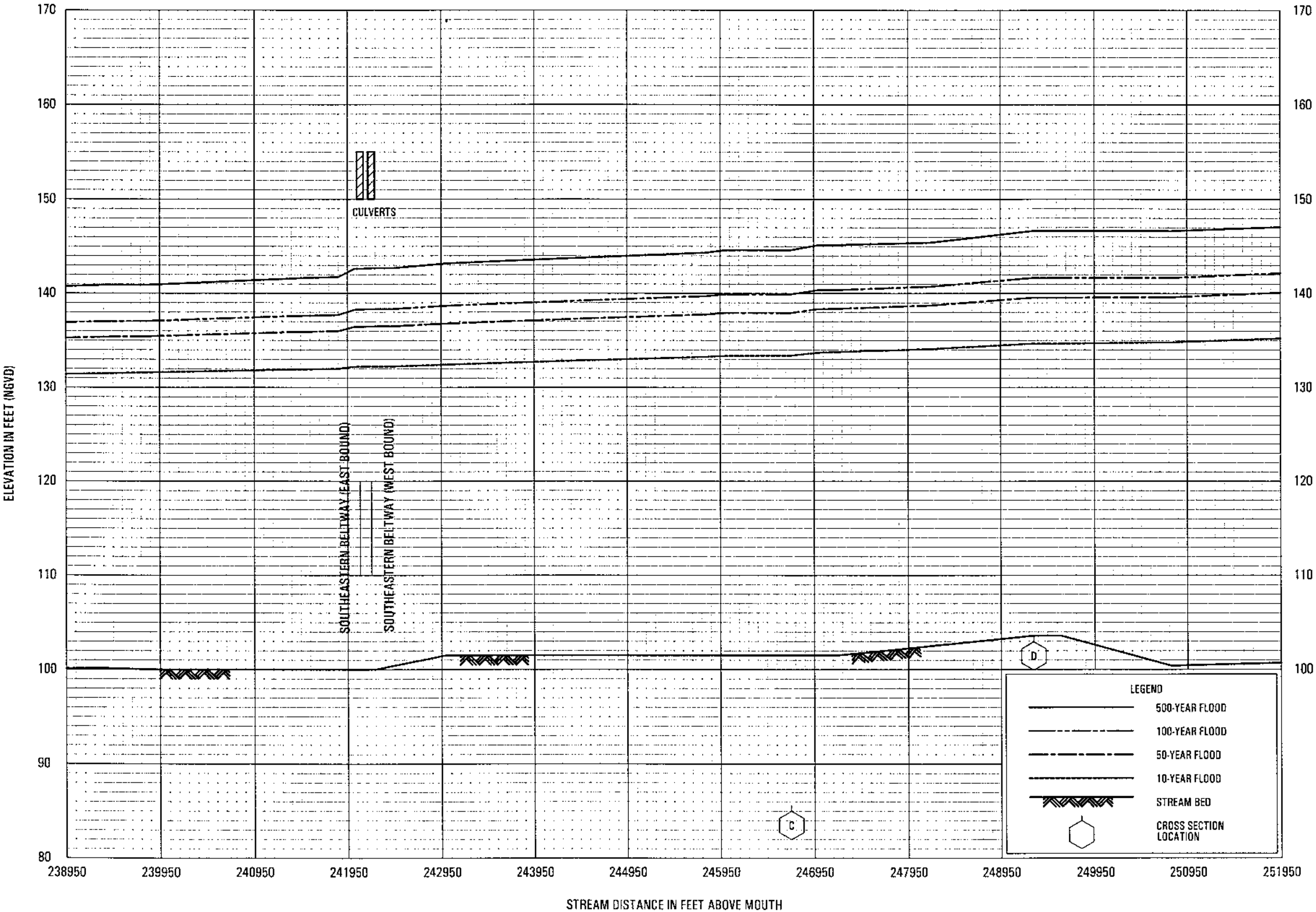
FLOOD PROFILES

CONGAREE RIVER (WITH LEVEE)

FEDERAL EMERGENCY MANAGEMENT AGENCY

LEXINGTON COUNTY, SC

AND INCORPORATED AREAS



FLOOD PROFILES

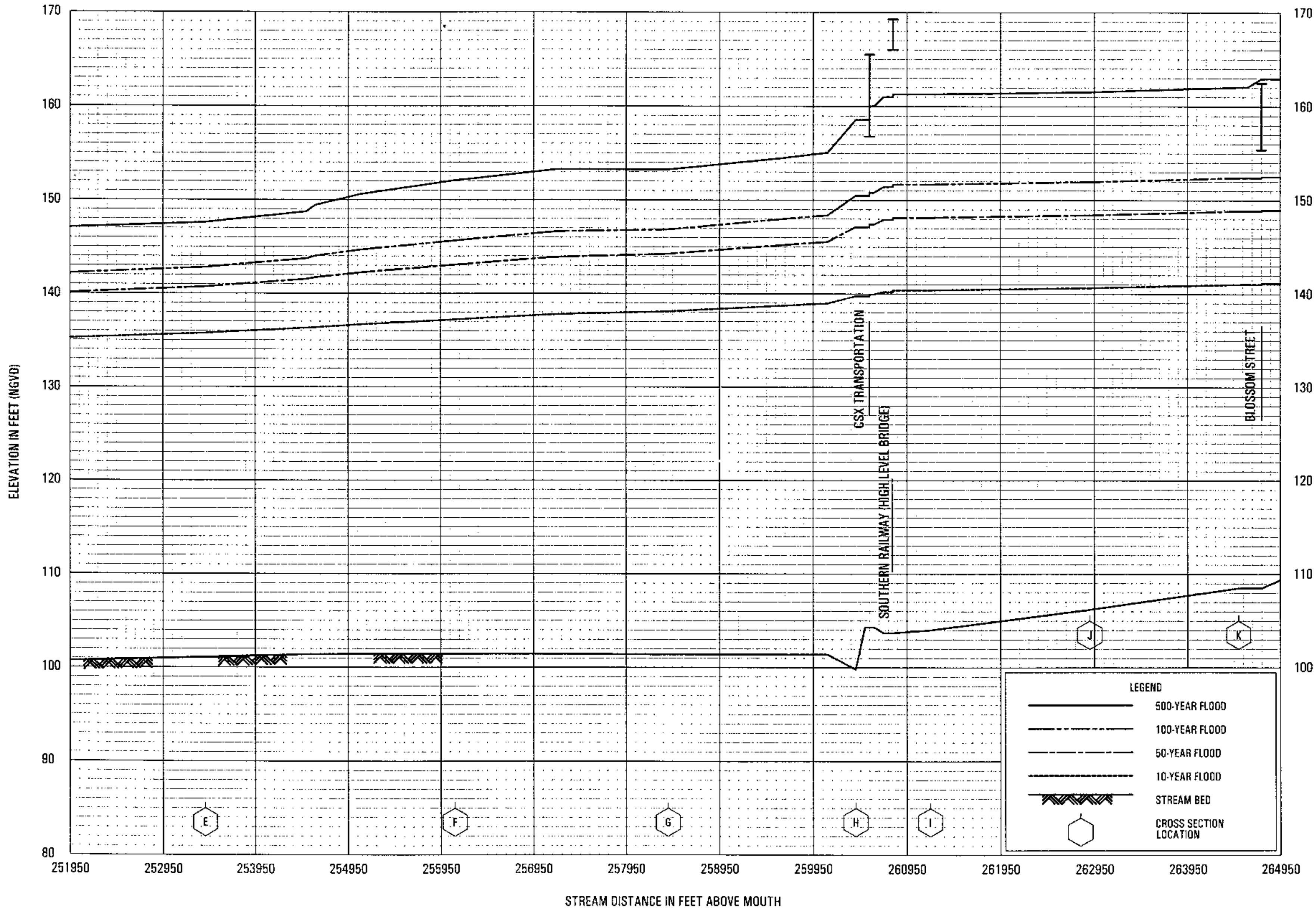
CONGAREE RIVER (WITH LEVEE)

FEDERAL EMERGENCY MANAGEMENT AGENCY

LEXINGTON COUNTY, SC

AND INCORPORATED AREAS

14P



FLOOD PROFILES

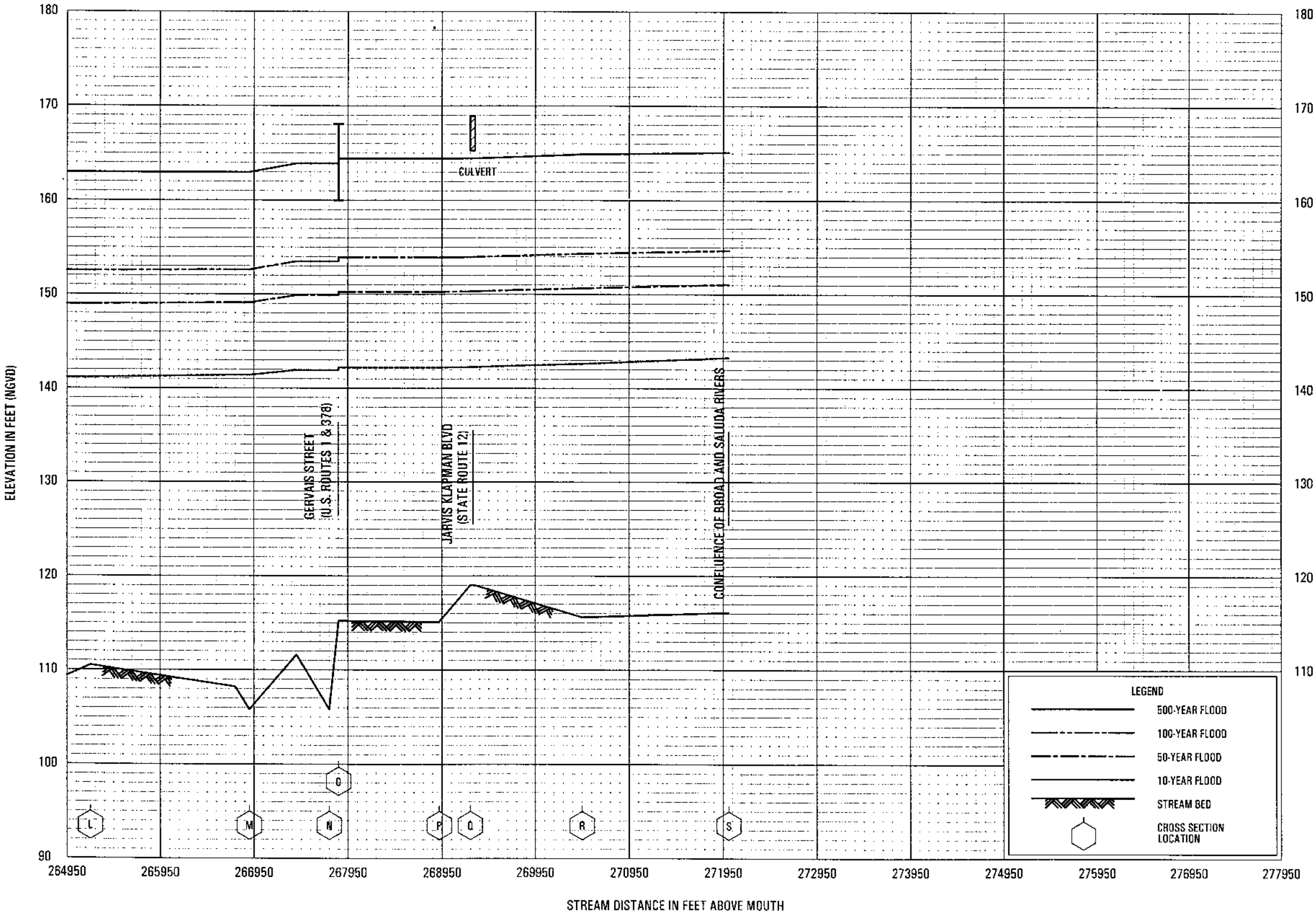
CONGAREE RIVER (WITH LEVEE)

FEDERAL EMERGENCY MANAGEMENT AGENCY

LEXINGTON COUNTY, SC

AND INCORPORATED AREAS

15P



FLOOD PROFILES

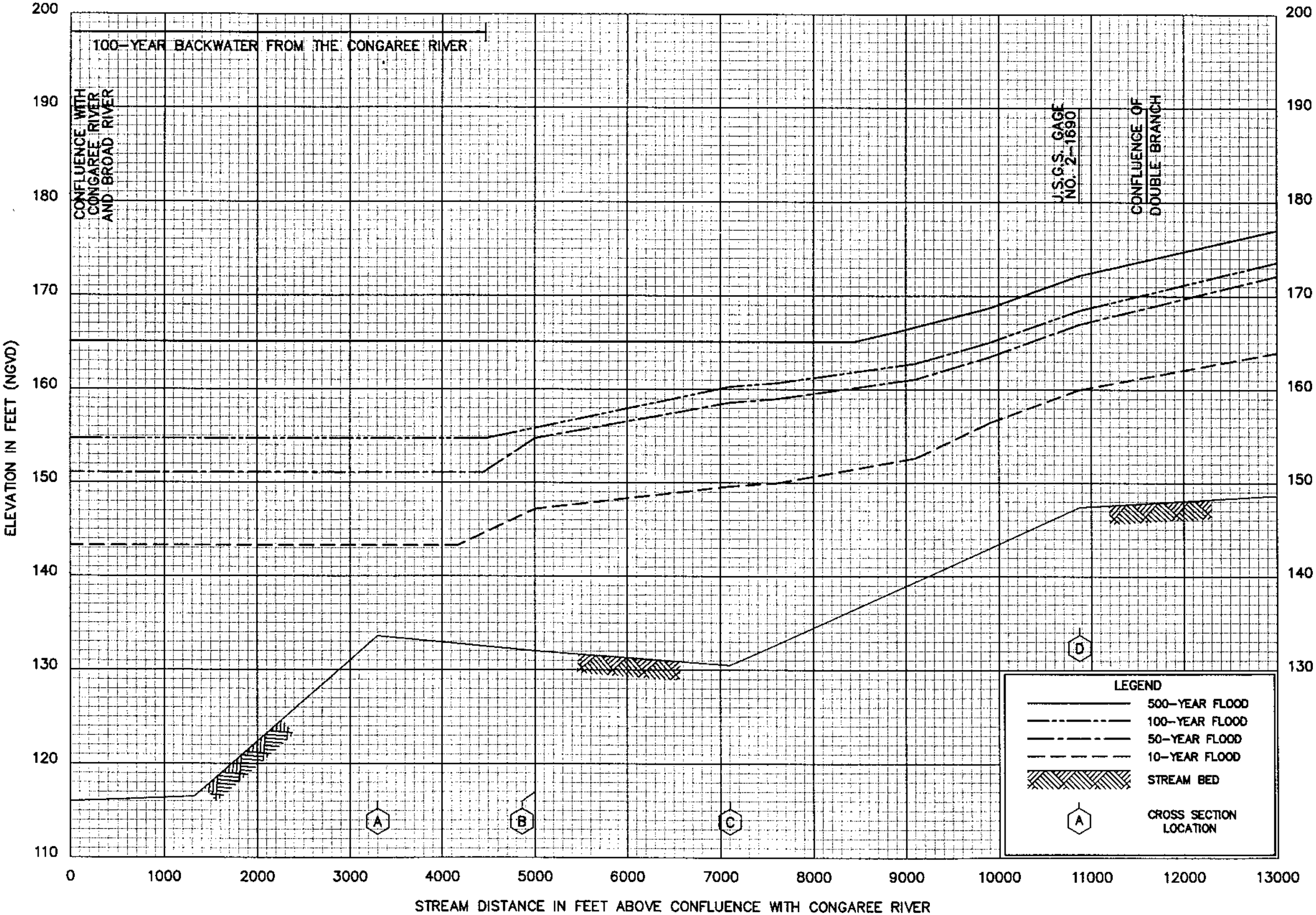
CONGAREE RIVER (WITH LEVEE)

FEDERAL EMERGENCY MANAGEMENT AGENCY

LEXINGTON COUNTY, SC

AND INCORPORATED AREAS

16P



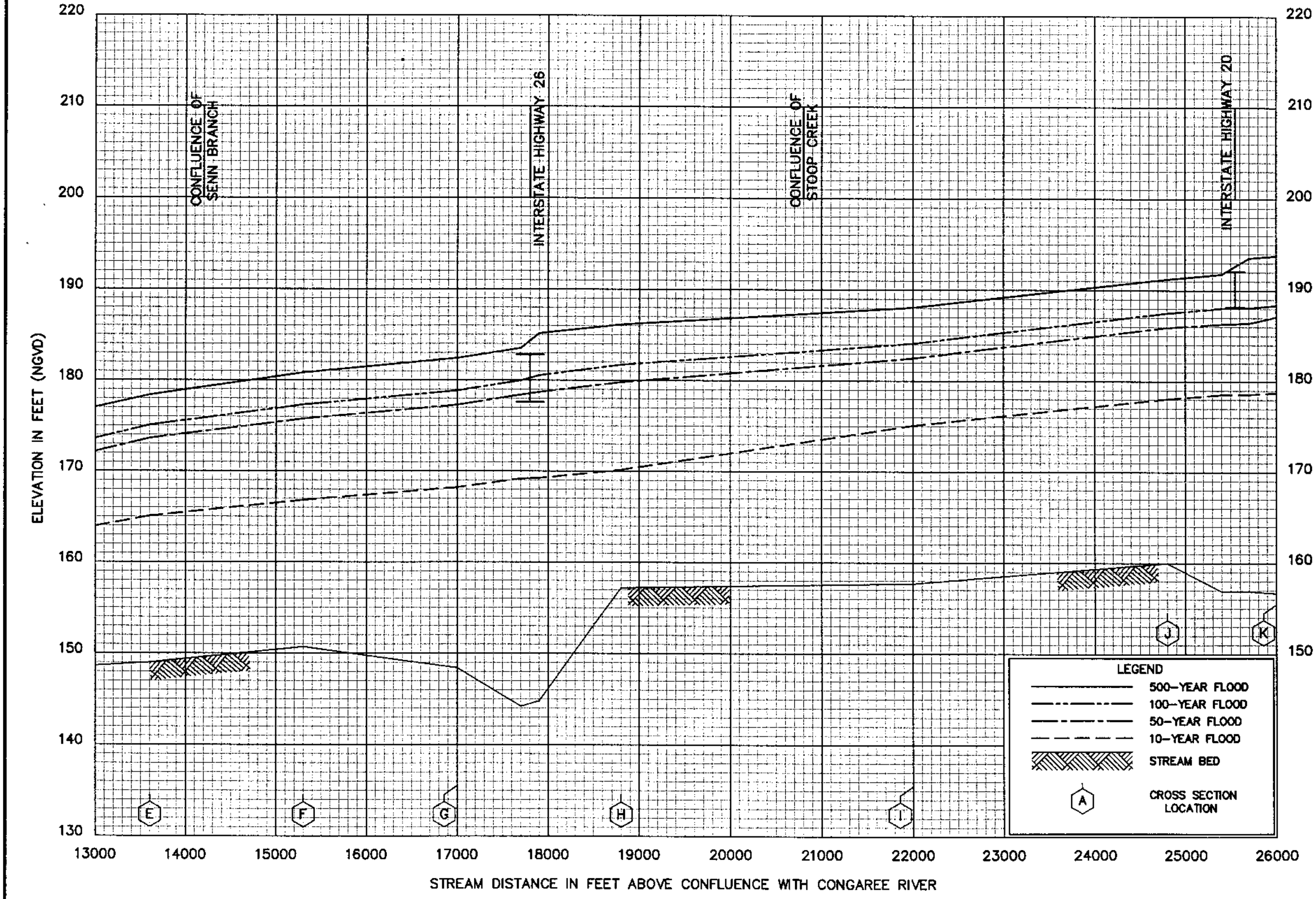
FLOOD PROFILES

SALUDA RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY

LEXINGTON COUNTY, SC AND INCORPORATED AREAS

54P

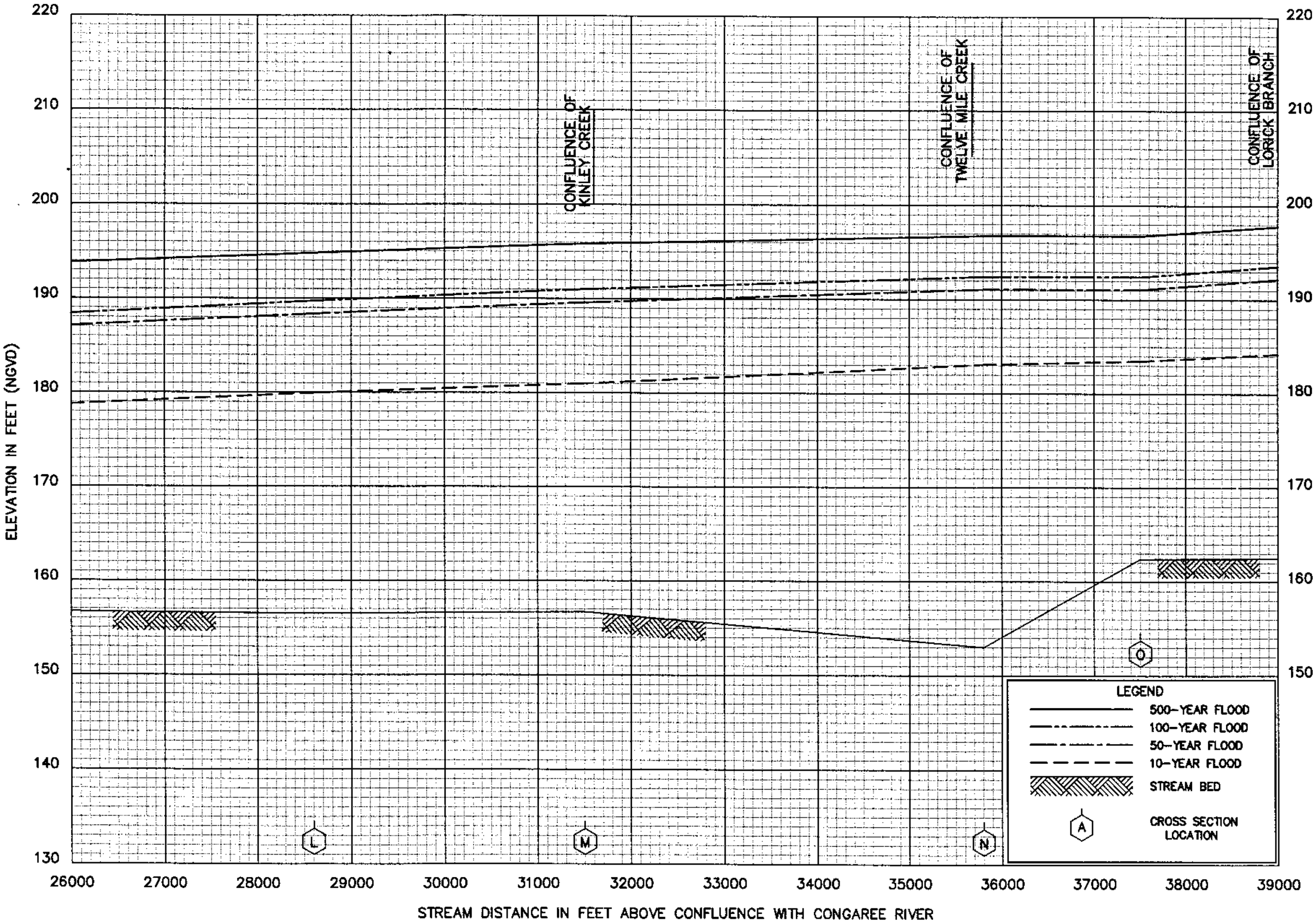


FLOOD PROFILES

SALUDA RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY

LEXINGTON COUNTY, SC AND INCORPORATED AREAS



FLOOD PROFILES

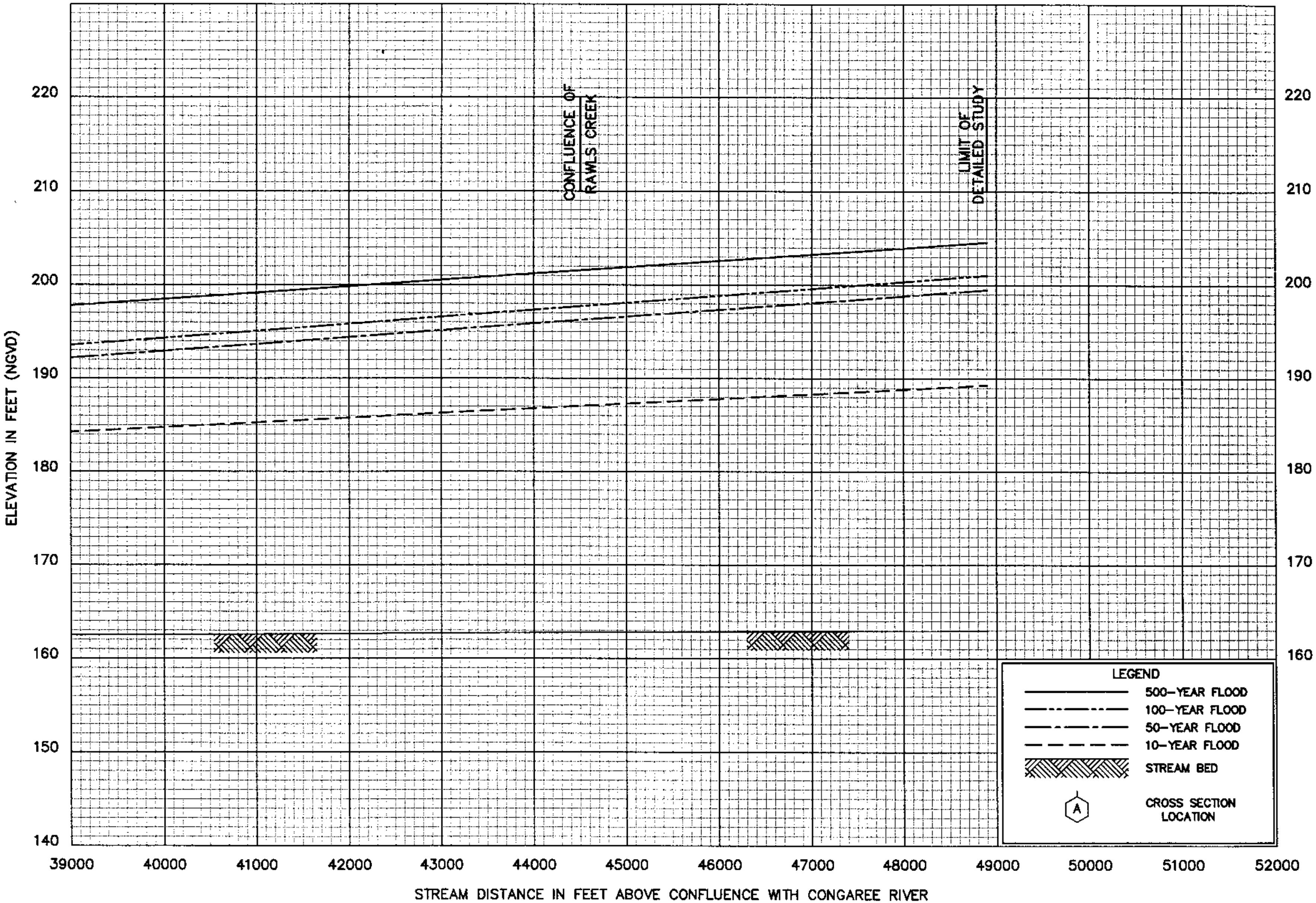
SALUDA RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY

LEXINGTON COUNTY, SC

AND INCORPORATED AREAS

56P

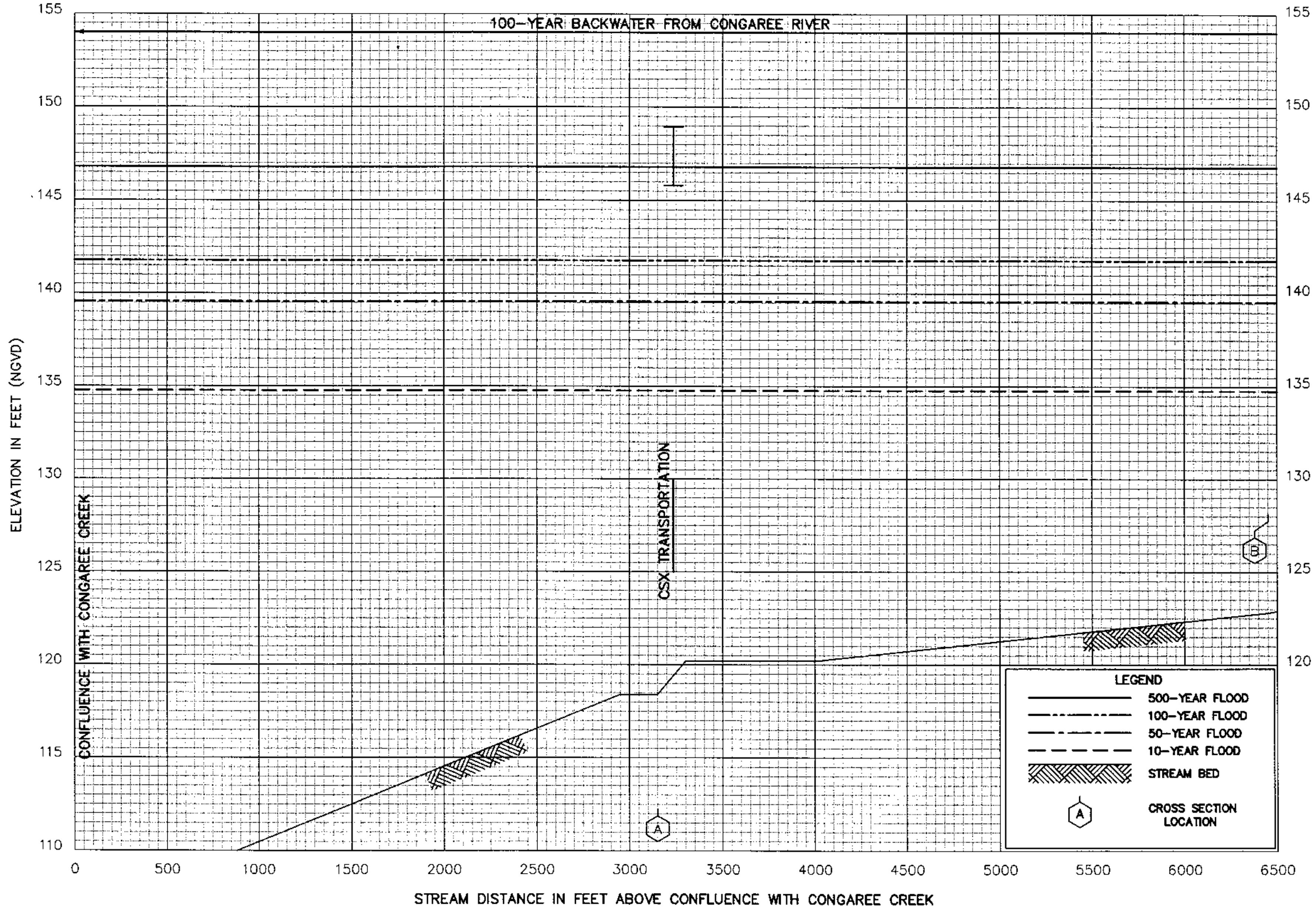


FLOOD PROFILES

SALUDA RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY

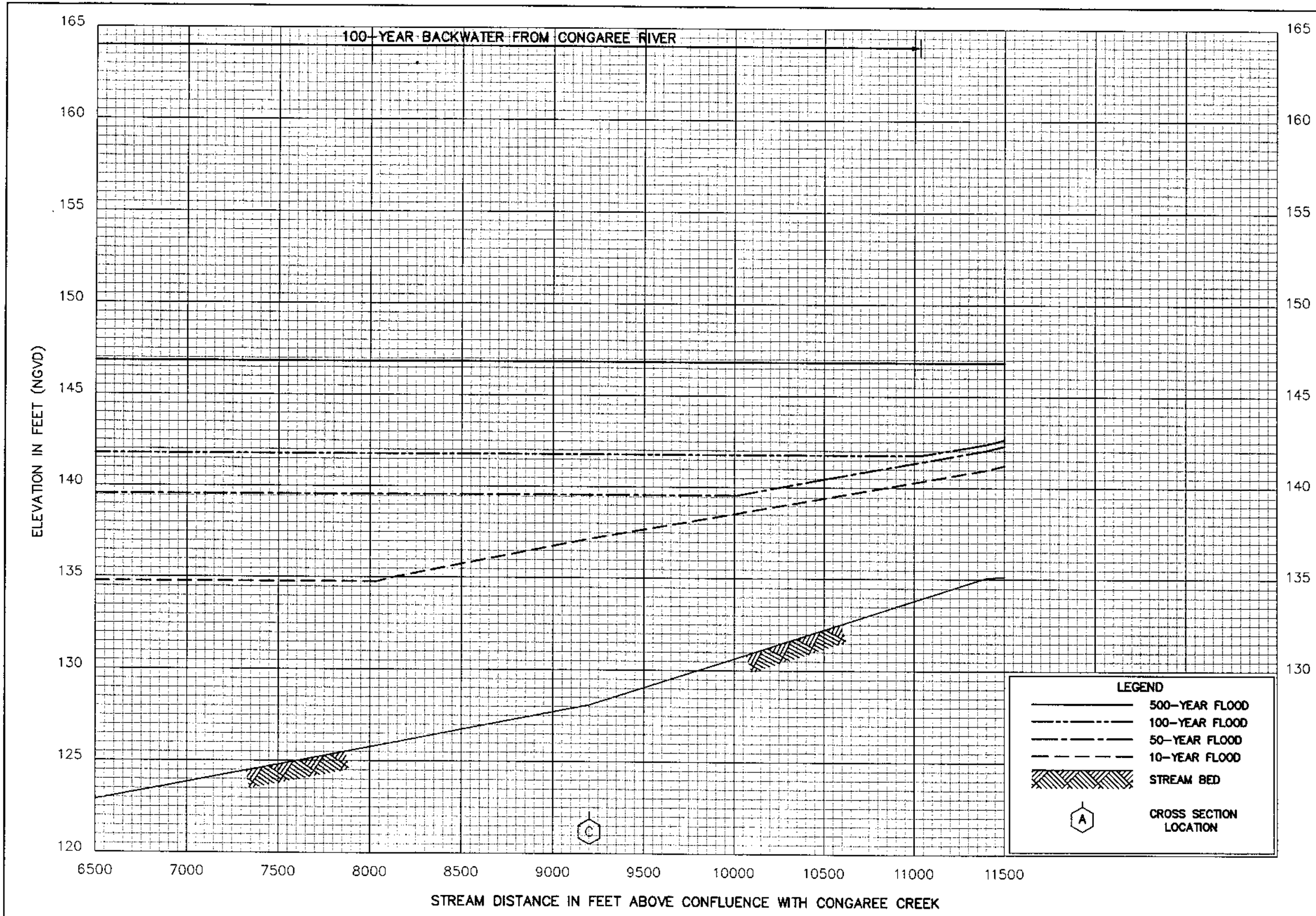
LEXINGTON COUNTY, SC AND INCORPORATED AREAS



FLOOD PROFILES

SIX MILE CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY
LEXINGTON COUNTY, SC
AND INCORPORATED AREAS



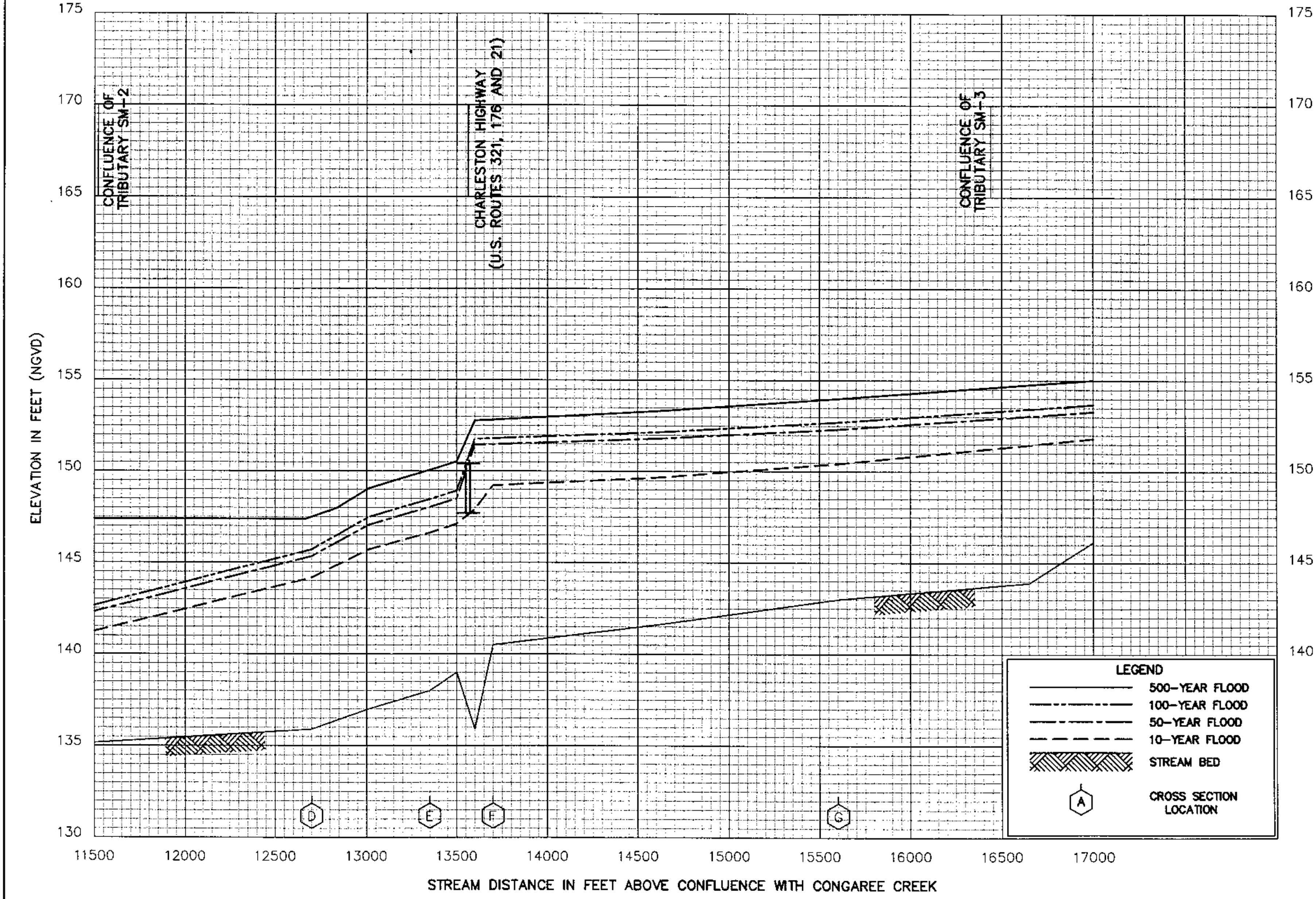
FLOOD PROFILES

SIX MILE CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

LEXINGTON COUNTY, SC

AND INCORPORATED AREAS



FLOOD PROFILES

SIX MILE CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

LEXINGTON COUNTY, SC

AND INCORPORATED AREAS